

1942

List of Irregularities

1. Vol. 39, No. 4 (March 1942): page 27-28
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UNIVERSITY OF MARYLAND

OFFICIAL PUBLICATION

GENERAL CATALOG

1942-1943



*"The Foundation of Every State
is the Education of its Youth"*

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SPECIAL NOTICE

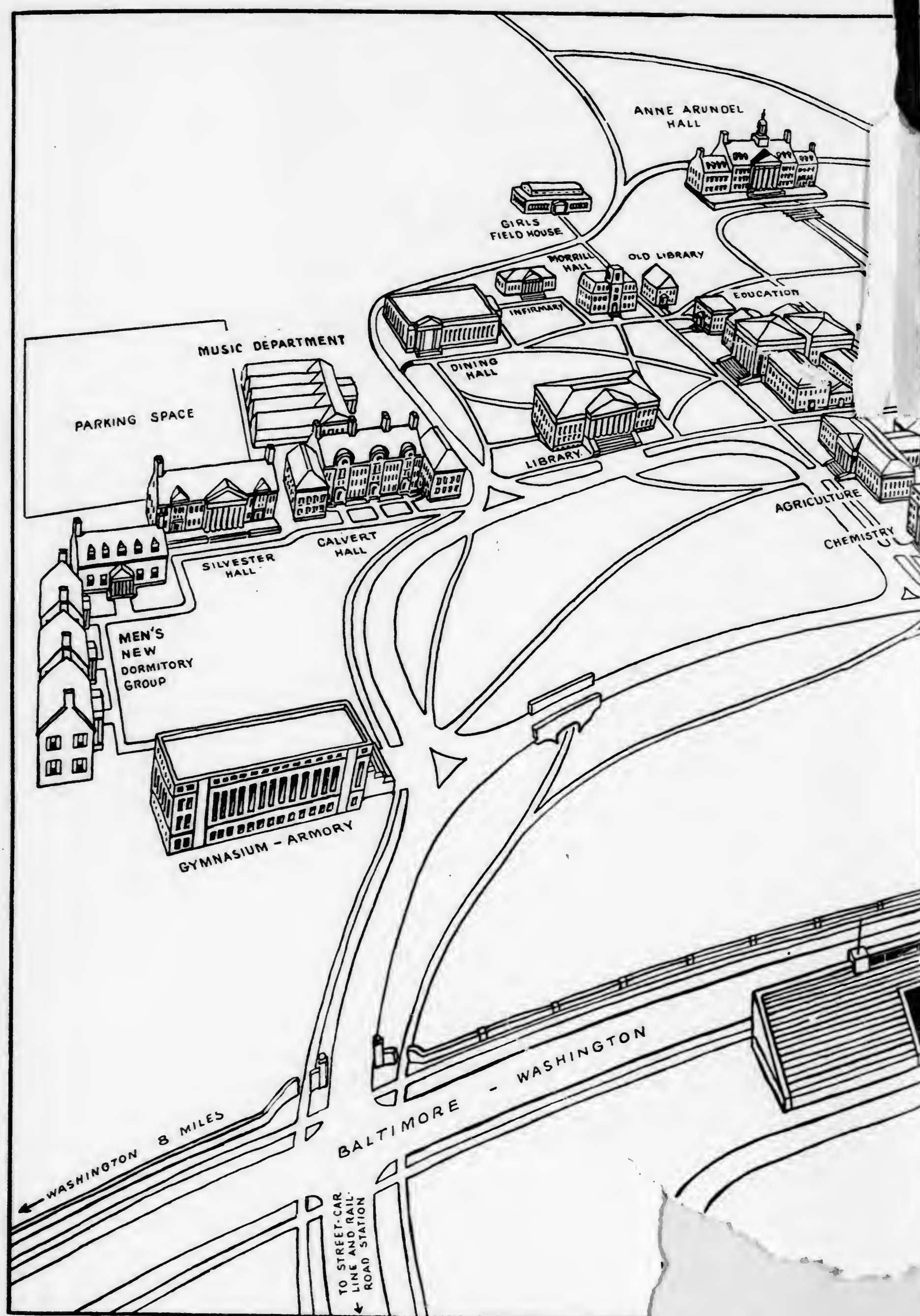
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MAP OF THE UNIVERSITY CAMPUS COLLEGE PARK

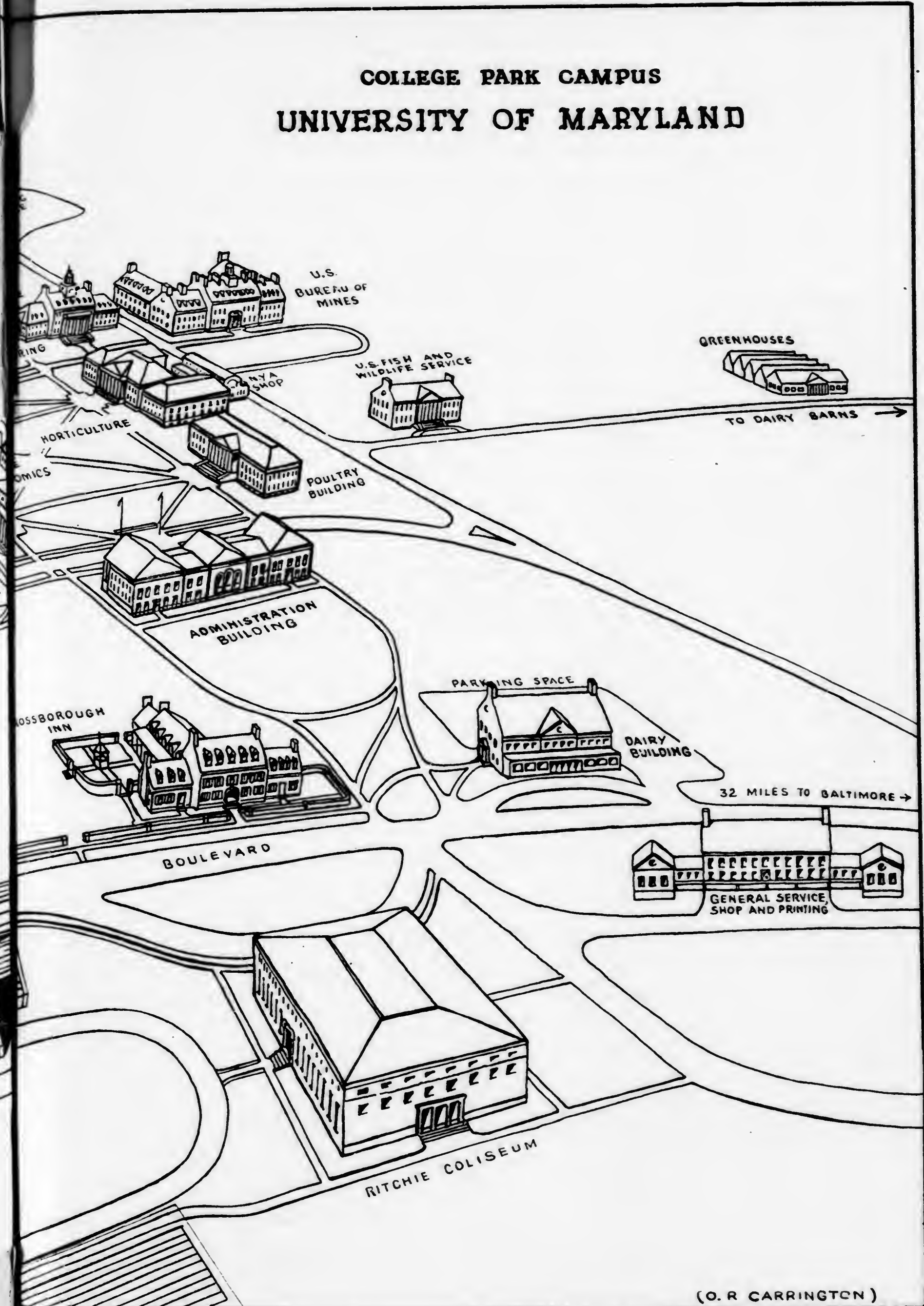
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MAP OF THE UNIVERSITY CAMPUS COLLEGE PARK



COLLEGE PARK CAMPUS UNIVERSITY OF MARYLAND



(O. R. CARRINGTON)

Official Publication of the University of Maryland

Vol. 39, No. 4

March, 1942

CATALOG

1942 • 1943



*Containing general information concerning the University.
Announcements for the Scholastic Year 1942-1943, and rec-
ords of 1941-1942.*

*Facts, conditions, and personnel herein set forth are as exist-
ing at the time of publication, March, 1942.*

Issued Semi Monthly by The University of Maryland, College Park, Md.
Entered as Second Class Matter Under Act of Congress of July 16, 1894.

CALENDAR FOR 1942-1943

1942	1943		1944
JULY	JANUARY	JULY	JANUARY
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27 28 29 30 31	27 28 29 30	26 27 28 29 30 31	25 26 27 28 29 30

UNIVERSITY CALENDAR

1942-43

COLLEGE PARK

1942	Summer Semester	
June 19-20	Friday, Saturday	Registration for Summer Semester and Short Summer Session.
June 22	Monday	Instruction begins.
June 27	Saturday	Last day to change registration or to file schedule card without penalty.
July 4	Saturday	Holiday.
Aug. 12	Wednesday	Closing date, Short Summer Session.
September 7	Monday	Labor Day, Holiday.
October 2	Friday	Closing date, Summer Semester.
Fall Semester		
October 8, 9, 10	Thursday-Saturday	Registration for Fall Semester.
October 12	Monday	Instruction begins.
October 17	Saturday	Last day to change registration or to file schedule card without penalty.
October 20	Tuesday	Reception to the Faculty.
October 31	Saturday	Homecoming Day.
November 26	Thursday	Thanksgiving, Holiday.
December 21-27 (inc.)	Monday-Sunday	Christmas Recess.
1943	Spring Semester	
January 1	Friday	New Year's Day, Holiday.
January 20	Wednesday	Alumni and Faculty Charter Day Banquet.
February 4	Thursday	Closing date, Fall Semester.
February 8, 9	Monday-Tuesday	Registration for Spring Semester.
February 10	Wednesday	Instruction begins.
February 16	Tuesday	Last day to change registration or to file schedule card without penalty.
February 22	Monday	Washington's Birthday, Holiday.
March 25	Thursday	Maryland Day.
April 23-26 (inc.)	Friday-Monday	Easter Recess.
May 23	Sunday	Baccalaureate Sermon.
May 28	Friday	Closing date, Spring Semester.
May 29	Saturday	Commencement.
June 14-19	Monday-Saturday	Rural Women's Short Course.

Note: The academic calendars of the professional schools in Baltimore will be found in the separate catalogues published by these schools.

FOREWORD

In view of the urgent need of the military services and the country generally for trained men and women, the University of Maryland has adopted an accelerated educational program designed to meet this need. Under the new plan, the University's academic year, which formerly consisted of two semesters of eighteen weeks each, running from mid-September to early June, with a long summer vacation, has been changed to a three semester, all-year basis. The first semester under the new plan—the summer semester of 1942—will begin on June 19, 1942, and run until October 2, 1942. The fall semester will begin on October 12, 1942, and run until February 4, 1943. The spring semester will begin on February 8, 1943 and end on May 29, 1943.

Students following the accelerated program, except those in Engineering, who will need three years, should be able to graduate in two and two-thirds years from the date of entrance. New students will be admitted at the beginning of any of the three semesters.

It is of special importance that men students matriculate at the beginning of the summer semester, because, by doing so, they will, in most cases, be able to complete their university training before they become of draft age. Another important consideration is that the Department of Military Science and Tactics has adopted a regulation that only students who take the full all-year round schedule will be admitted to the Advanced Course, which leads to a commission as Second Lieutenant in the Reserve Officers Training Corps of the United States Army.

For the convenience of school teachers and others who may wish to spend a part of their summer vacation in study, the summer semester has been divided into two equal parts of approximately seven and one-half weeks each, and the usual Summer Session will run concurrently with the first of these seven and one-half week periods.

The attention of men students is especially directed to the unusual opportunities which exist for training in specialized curricula which lead to commissions in the United States Army, Navy, Marine Corps, Coast Guard and Merchant Marine, and of receiving expert instruction in piloting of aircraft. Also, there is an unusual demand at this time, which demand will doubtless continue for the duration of the war emergency, for trained men in Meteorology, Electronics, Chemistry, Physics, Radio, and other scientific lines, both in the military services and in the United States Civil Service.

While the University recommends that students enroll for the all-year round program, it will still be possible for those who desire to do so, to pursue their college careers more leisurely. In other words, students who register for the first time in the fall semester will be able to have their summers free and complete their college course in the normal four year period.

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JOHN E. SEMMES.....	Baltimore	1942
HENRY HOLZAPFEL, JR.....	Hagerstown	1943
J. MILTON PATTERSON.....	Baltimore	1944
MRS. JOHN L. WHITEHURST.....	Baltimore	1947
ROWLAND K. ADAMS.....	Baltimore	1948
WILLIAM P. COLE, JR.....	Towson	1949
PHILLIP C. TURNER.....	Parkton	1950

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J. MILTON PATTERSON.....	Treasurer
H. C. BYRD.....	Executive Officer

Members of the Board are appointed by the Governor of the State for terms of nine years each, beginning the 1st Monday in June.

The President of the University of Maryland is, by law, Executive Officer of the Board.

The State Law provides that the Board of Regents of the University of Maryland shall constitute the Maryland State Board of Agriculture.

A regular meeting of the Board is held the third Friday of each month, except during the months of July and August.

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 TOBIAS DANTZIG, Ph.D., Professor of Mathematics.
 GEORGE ODELL STITZER DARBY, Ph.D., Assistant Professor of Modern Languages.
 GOMER LEWIS DAVIES, B.S., Lecturer on Electrical Communications.
 EVELYN DAVIS, A.B., Instructor in Physical Education for Women.
 ROBERT W. DAYTON, M.S., Instructor in Engineering Drawing.
 SAMUEL H. DEVAULT, Ph.D., Professor of Agricultural Economics and Farm Management.
 HAROLD MOON DEVOLT, M.S., D.V.M., Associate Professor of Animal Pathology.
 LINDEN SEYMOUR DODSON, Ph.D., Assistant Professor of Sociology.
 NATHAN LINCOLN DRAKE, Ph.D., Professor of Organic Chemistry.
 *ALICE GWENDOLYN DREW, M.A., Professor of Physical Education for Women.
 H. G. DUBUY, Ph.D., Assistant Professor of Botany.
 EMMERT PARKER DUPLER, M.A., Assistant in Speech.
 FLORENCE IRMA EDWARDS, A.B., Instructor in Art.
 RAY EHRENSBERGER, Ph.D., Professor of Speech.
 CHARLES GARFIELD EICHLIN, M.S., Professor of Physics.
 PAUL MURRAY ELLIS, Major, Inf., (Retired) U.S.A., Assistant Professor of Military Science and Tactics.
 CHARLES WALTER ENGLAND, Ph.D., Professor of Dairy Manufacturing.
 HARRY COLE ENGLISH, B.S., Instructor in Physical Education.
 *GEARY FRANCIS EPPLEY, M.S., Associate Professor of Agronomy.
 ALARIC ANTHONY EVANGELIST, M.A., Instructor in Modern Languages.
 JOHN EDGAR FABER, JR., Ph.D., Assistant Professor of Bacteriology.
 WILLIAM FRANKLIN FALLS, Ph.D., Professor of Modern Languages.
 H. S. FINNEY, Lecturer in Animal Husbandry.

*On leave 1941-42

- ROBERT TYSON FITZHUGH, Ph.D., Associate Professor of English.
 GEORGE WILLIS FOGG, M.A., Instructor in Library Science.
 MENNICK TRUMAN FOSSOM, M.S., Instructor in Commercial Floriculture.
 EUGENE S. FOSTER, M.A., Instructor in Speech.
 MARY T. FRANKLIN, M.A., Assistant in English.
 LEON WEBSTER FRAYER, B.M.E., Instructor in Mechanical Engineering.
 RALPH GALLINGTON, M.A., Assistant Professor of Industrial Education.
 CATHARINE A. GARDINER, M.A., Instructor in Education.
 MERRILL COCHRANE GAY, Ph.D., Assistant Professor of Economics.
 WESLEY MARSH GEWEHR, Ph.D., Professor of History.
 CARL WILLIAM GOHR, B.S., Instructor in Civil Engineering.
 WILLIAM HENRY GRAVELY, JR., M.A., Instructor in English.
 WILSON PAYNE GREEN, M.S., Associate Professor of Mechanical Engineering.
 HARLAND C. GRISWOLD, Lt. Col., Inf., U. S. Army, Assistant Professor of Military Science and Tactics.
 ALLEN GARFIELD GRUCHY, Ph.D., Professor of Finance and Economics.
 *JAMES MARTIN GWIN, B.S., Associate Professor of Poultry Production and Marketing.
 RAY CARTER HACKMAN, Ph.D., Instructor in Psychology.
 CHARLES BROCKWAY HALE, Ph.D., Professor of English.
 HARRY RUTLEDGE HALL, B.S., Lecturer on Municipal Sanitation.
 ARTHUR BRYAN HAMILTON, M.S., Assistant Professor of Agricultural Economics.
 HAROLD CURTIS HAND, Ph.D., Professor of Education.
 POUL ARNE HANSEN, Ph.D., Associate Professor of Bacteriology.
 WALTER L. HARD, Ph.D., Assistant Professor of Zoology.
 MALCOLM MORRISON HARING, Ph.D., Professor of Physical Chemistry.
 SUSAN EMOLYN HARMAN, Ph.D., Associate Professor of English.
 IRVIN CHARLES HAUT, Ph.D., Associate Professor of Pomology.
 DONALD CUMMINS HENNICK, B.S., Instructor in Shop Practice.
 FRANK L. HESS, B.S., Lecturer on Zoology.
 LEO INGEMAN HIGHBY, Ph.D., Associate Professor of Ancient Languages and Literature.
 CARL WILLIAM EDMUND HINTZ, A.M.L.S., Associate Professor of Library Science.
 CHETSER WOOD HITZ, Ph.D., Assistant in Pomology.
 LAWRENCE JUDSON HODGINS, B.S., Associate Professor of Electrical Engineering.
 CHESTER A. HOGENTOLGER, JR., B.S., Instructor in Civil Engineering.
 BERNARD J. HOLM, Ph.D., Instructor in History.
 JOHN BRADSHAW HOLT, Ph.D., Associate Professor of Sociology.
 HARRY BENTON HOSHALL, B.S., M.E., Assistant Professor of Mechanical Engineering.
 LAWRENCE VAUGHN HOWARD, Ph.D., Professor of Political Science.
 *JESSE WILLIAM HUCKERT, Ph.D., Associate Professor of Mechanical Engineering.

*On leave 1941-42

- WILBERT JAMES HUFF, Ph.D., D.Sc., Professor of Chemical Engineering.
 GEORGE BOND HUGHES, B.S., Assistant Professor of Dairy Manufacturing.
 RICHARD RUSSELL HUTCHESON, M.A., Instructor in Speech.
 LEROY CHARLES HUTCHINSON, Ph.D., Instructor in Mathematics.
 *FRANCES AURELIA IDE, M.A., Assistant Professor of English.
 LORRAINE V. JACKSON, B.A., Assistant in Speech.
 STANLEY BARTLETT JACKSON, Ph.D., Assistant Professor of Mathematics.
 ROBERT ISAAC JAFFEE, B.S., S.M., Lecturer on Chemical Engineering.
 LAWRENCE HENRY JAMES, Ph.D., Professor of Bacteriology.
 WALTER FULTON JEFFERS, Ph.D., Instructor in Plant Pathology.
 ROBERT ANDREW JEHLE, Ph.D., Professor of Pathology.
 *JOHN GAMEWELL JENKINS, Ph.D., Professor of Psychology.
 ROBERT WELLINGTON JONES, 1st Lt., Inf. Reserve, U.S.A., Assistant Professor of Military Science and Tactics.
 CARL SMITH JOSLYN, Ph.D., Professor of Sociology.
 IDA S. JOSLYN, M.A., Assistant in English.
 ARNOLD EDWARD JOYAL, Ph.D., Professor of Educational Administration.
 GORDON LOUIS JUDD, 1st Lt., Inf. Reserve, U.S.A., Assistant Professor of Military Science and Tactics.
 MORLEY ALLAN JULL, Ph.D., Professor of Poultry Husbandry.
 JAMES W. JUST, Director of Fire Service Extension.
 GEORGE JULE KABAT, M.A., Instructor in Education.
 HAROLD LEON KELLY, JR., 1st Lt., Inf. Reserve, U.S.A., Assistant Professor of Military Science and Tactics.
 WILLIAM BECK KEMP, Ph.D., Professor of Agronomy.
 R. T. KERLIN, Ph.D., Instructor in English (Extension).
 CHARLES ATKINSON KIRKPATRICK, A.M., D.C.S., Assistant Professor of Marketing and Business Administration.
 MARY E. KIRKPATRICK, M. S., Assistant Professor of Foods and Nutrition.
 JOSEPH ARMSTRONG KITCHIN, M.A., Instructor in Political Science.
 *HOWARD MARTIN KLINE, Ph.D., Assistant Professor of Political Science.
 PAUL KNIGHT, M.S., Assistant Professor of Entomology.
 CHARLES FREDERICK KRAMER, JR., M.A., Associate Professor of Modern Languages.
 ARTHUR COLUMBUS KURZWEIL, Ph.D., Assistant Professor of Civil Engineering.
 OTIS EWING LANCASTER, Ph.D., Assistant Professor of Mathematics.
 GEORGE S. LANGFORD, Ph.D., Associate Professor of Entomology.
 WILLARD ARTHUR LANING, JR., Ph.D., Assistant Professor of Electrical Engineering.
 JAMES MILTON LEATH, M.A., Instructor in Political Science.
 FREDERICK HAROLD LEINBACH, Ph.D., Professor of Animal Husbandry.
 PETER P. LEJINS, Ph.D., Assistant Professor of Sociology.
 FRANK MARTIN LEMON, Ph.D., Assistant Professor of English.
 ANDRÉ FRANK LIOTARD, B.A., B.D., Instructor in Modern Languages.
 EDGAR FAUVER LONG, Ph.D., Professor of Education.
 GERALD LOUIS LUND, B.S., Assistant in English.

*On leave 1941-42

- STUART ALEXANDER MACCORKLE, Ph.D., Lecturer in Political Science.
 GEORGE MAURICE MACHWART, Ph.D., Assistant Professor of Chemical Engineering.
 ROBERTA MACK, B.S., Assistant Professor of Institution Management.
 CHARLES LEROY MACKERT, M.A., Professor of Physical Education (deceased).
 JOHN WALKER MACMILLAN, Ph.D., Instructor in Psychology.
 GEORGE FRANCIS MADIGAN, Ph.D., Assistant Professor of Soils.
 CHARLES HOWARD MAHONEY, Ph.D., Professor of Olericulture.
 ALPHEUS ROYALL MARSHALL, Ph.D., Associate Professor of Economics.
 LEON C. MARSHALL, Ph.D., Instructor in Education (Extension).
 FRITZ MARTI, Ph.D., Professor of Philosophy.
 MONROE HARNISH MARTIN, Ph.D., Associate Professor of Mathematics.
 WILLIAM GILHAM MCCOLLOM, M.A., Instructor in English.
 JOSEPH CLARK MCDANIEL, B.S., Instructor in Physical Education.
 FRIEDA WIEGAND MCFARLAND, M.A., Professor of Textiles and Clothing.
 JAMES GILMER MCMAWAY, Ph.D., Lecturer on Elizabethan Drama.
 EDNA BELLE MCNAUGHTON, M.A., Professor of Home Economics Education.
 DEVOE MEADE, Ph.D., Professor of Animal Husbandry.
 JOHN U. MICHAELIS, M.A., Instructor in Education.
 EDMUND ERSKINE MILLER, Ph.D., Instructor in Modern Languages.
 FRANCES HOWE MILLER, A.M., Instructor in English.
 JOSHUA ALBERT MILLER, M.A., Administrative Coordinator of Practice Teaching.
 CHARLES WRIGHT MILLS, M.A., Associate Professor of Sociology.
 THYRA FAYE MITCHELL, M.A., Instructor in Textiles and Clothing.
 LANE A. MOORE, Ph.D., Associate Professor of Dairy Husbandry.
 POLLY KESSINGER MOORE, Ph.D., Assistant Professor of Textiles and Clothing.
 MYRL MARIE MOUNT, M.A., Professor of Home and Institution Management.
 CHARLES DRISCOLL MURPHY, Ph.D., Assistant Professor of English.
 HAZEL B. MURRAY, B.S., Instructor in Foods and Nutrition.
 JOHN GEORGE MUTZIGER, M.A., Instructor in Modern Languages.
 RALPH DUANE MYERS, Ph.D., Instructor in Physics.
 HOMER EDWARD NEWELL, JR., A.M.T., Ph.D., Instructor in Mathematics.
 EDWIN N. NILSON, Ph.D., Instructor in Mathematics.
 JOHN BITTING SMITH NORTON, M.S., D.Sc., Professor of Plant Pathology.
 PETER OESPER, Ph.D., Instructor in Physical Chemistry.
 JAMES BURTON OUTHOUSE, B.S., Assistant Professor of Animal Husbandry.
 WILLIAM HARWOOD PEDEN, M.S., Instructor in English.
 MICHAEL JOSEPH PELCZAR, Ph.D., Instructor in Bacteriology.
 NORMAN ETHELBERG PHILLIPS, Ph.D., Associate Professor of Zoology.
 ROBERT EMMETT PHILLIPS, Ph.D., Associate Professor of Poultry Physiology.
 ROMAN N. PIEO, B.A., Assistant in Physical Education for Men.
 PAUL ROUTZAHN POFFENBERGER, M.S., Instructor in Agricultural Economics.
 AUGUSTUS JOHN PRAHL, Ph.D., Assistant Professor of Modern Languages.

- GORDON WILLIAM PRANGE, Ph.D., Assistant Professor of History.
 HESTER BEALL PROVENSEN, LL.B., Assistant Professor of Speech.
 MILTON ALLENDER PYLE, B.S., C.E., Assistant Professor of Civil Engineering.
 GEORGE DEWITTE QUIGLEY, B.S., Associate Professor of Poultry Husbandry.
 EDWARD F. QUINN, JR., Captain, Inf., U. S. A., Assistant Professor of Military Science and Tactics.
 ROBERT C. RAND, M.A., Assistant in Mathematics.
 BENJAMIN HARLAN RANDALL, B.Mus., Assistant Professor of Music.
 EDWARD WILKINS REEVE, Ph.D., Instructor in Organic Chemistry.
 JAMES HENRY REID, M.A., Instructor in Marketing.
 DURANT WAITE ROBERTSON, JR., M.A., Instructor in English.
 HOWARD ROVELSTAD, A.M., B.S.L.S., Instructor in Library Science.
 ALBERT LEE SCHRADER, Ph.D., Professor of Pomology.
 MARK SCHWEIZER, Ph.D., Instructor in Modern Languages.
 AARON WILEY SHERWOOD, M.E., Instructor in Mechanical Engineering.
 HOWARD BURTON SHIPLEY, B.S., Instructor in Physical Education.
 *HAROLD GEORGE SHIRK, Ph.D., Assistant Professor of Plant Physiology.
 ROBERT VERNON SHIRLEY, M.B.A., Instructor in Business Law and Business Statistics.
 MARK MERCER SHOEMAKER, A.B., M.L.D., Associate Professor of Landscape Gardening.
 CHARLES ALFRED SHREEVE, JR., B.M.E., Assistant Professor of Mechanical Engineering.
 OTTO SIEBENEICHEN, Instructor in Band Music.
 ARTHUR SILVER, M.A., Assistant Professor of History.
 J. MARVIN SIPE, A.M., Ed.D., Assistant Professor of Business Administration.
 HENRY HUNTER SMITH, M.S., Instructor in Physics.
 KATHLEEN MARIE SMITH, A.B., Ed.D., Instructor in Education.
 PAUL EDWARD SMITH, M.A., Instructor in English.
 WILSON LEVERING SMITH, JR., B.S., Assistant in Plant Pathology.
 ROBERT EVANS SNODGRASS, A.B., Lecturer on Entomology.
 CHARLES MCC. SNYDER, M.A., Instructor in History (Extension).
 ALSTON W. SPECHT, M.S., Instructor in Agronomy.
 JESSE WILLIAM SPROWLS, Ph.D., Professor of Psychology.
 SAMUEL SIDNEY STEINBERG, B.E., C.E., Professor of Civil Engineering.
 REUBEN GEORGE STEINMEYER, Ph.D., Associate Professor of Political Science.
 WAYNE MACKENZIE STEVENS, Ph.D., C.P.A., Professor of Economics and Business Administration.
 MARIA MARKHAM STEWART, M.A., Instructor in Physical Education for Women.
 LEONID IVANOVICH STRAKHOVSKY, D.Hist.Sc., Professor of European History.
 WARREN LAVERNE STRAUSBAUGH, M.A., Assistant Professor of Speech.
 WILLIAM JULIUS SVIRBELY, M.S., D.Sc., Assistant Professor of Chemistry.
 LYNN LEROY SWEARINGEN, M.A., Instructor in English.

- KATHRYN MARIE TERHUNE, B.S., Instructor in Physical Education for Women.
 HAROLD WESLEY THATCHER, Ph.D., Assistant Professor of History.
 EVELYN LOUISE THOMAS, B.S., Assistant in Institution Management.
 ROYAL PRICE THOMAS, Ph.D., Professor of Soils.
 ALICE JANET THURSTON, A.M., Instructor in Psychology.
 ARTHUR SEARLE THURSTON, M.S., Professor of Floriculture and Landscape Gardening.
 WILLIS LATTANNER TRESSLER, Ph.D., Assistant Professor of Zoology.
 REGINALD VAN TRUMP TRUITT, Ph.D., Professor of Zoology and Aquiculture.
 KENNETH LEROY TURK, Ph.D., Professor of Dairy Husbandry.
 GEORGE CLARENCE VEDOVA, M.A., Assistant Professor of Mathematics.
 T. C. G. WAGNER, B.S., Assistant in Mathematics.
 WILLIAM PAUL WALKER, M.S., Associate Professor of Agricultural Economics.
 EDGAR PERKINS WALLS, Ph.D., Professor of Canning Crops.
 LUCY C. WANG, M.A., Instructor in Home Economics Education.
 KATHRYN M. WARD, M.A., Instructor in English.
 HARRY REDCAY WARFEL, Ph.D., Professor of English.
 FLOYD H. WARNER, M.Ed., Instructor in Physical Education for Men.
 VIRGINIA LEE WATTS, B.S., Instructor in Physical Education for Women.
 SIVERT MATTHEW WEDEBERG, A.M., C.P.A., Professor of Accounting.
 DONALD CHESTER WEEKS, Ph.D., Instructor in English.
 CLARIBEL PRATT WELSH, M.A., Professor of Foods.
 CHESTER C. WESTFALL, Lt. Col., Infantry, U. S. A., Assistant Professor of Military Science and Tactics.
 MAE A. WESTGATE, Instructor in Art.
 MARK WHEELER WESTGATE, Ph.D., Instructor in Chemistry.
 CHARLES EDWARD WHITE, Ph.D., Professor of Inorganic Chemistry.
 GLADYS ANNA WIGGIN, M.A., Instructor in Education.
 MILTON JOEL WIKSELL, M.A., Instructor in Speech.
 HELEN BARKLEY WILCOX, M.A., Instructor in Modern Languages.
 JOHN D. WILDMAN, M.A., Instructor in Bacteriology.
 RAYMOND CLIFFORD WILEY, Ph.D., Associate Professor of Analytical Chemistry.
 MARTHA HATHAWAY WILLIAMS, Ph.D., Instructor in Mathematics.
 RALPH IRWIN WILLIAMS, Captain, Inf., U. S. A., Assistant Professor of Military Science and Tactics.
 SARAH ELIZABETH WISE, M.S., Assistant in Plant Pathology.
 JOHN K. WOLFE, Ph.D., Lecturer in Chemistry.
 ALBERT WESTLE WOODS, B.S., Instructor in Agronomy.
 MARK WINTON WOODS, Ph.D., Assistant Professor of Plant Pathology.
 VERTREES JUDSON WYCKOFF, Ph.D., Associate Professor of Economics.
 JAMES FRANKLIN YEAGER, Ph.D., Lecturer on Entomology.
 JOHN ELLIOTT YOUNGER, Ph.D., Professor of Mechanical Engineering.
 WILLIAM GORDON ZEEVELD, Ph.D., Assistant Professor of English.
 ADOLF EDWARD ZUCKER, Ph.D., Professor of Modern Languages.

GRADUATE ASSISTANTS AND FELLOWS
1941-42

Graduate Assistants

Name	Department
GENEVIEVE AITCHESON	Poultry Husbandry
JOHN H. AXLEY	Agronomy
R. E. BACKENSTOSS	Modern Languages
DOROTHY M. CAMPBELL	Chemistry
DONALD W. CATE	Chemistry
CHARLES MARION CHANCE	Dairy Husbandry
AURELIUS F. CHAPMAN	Chemistry
HARVEY J. CHESTON, JR.	Mathematics
JOHNNIE COE	English
ALBERT NEILL COLE	Modern Languages
JOSEPH W. COTTER	Dairy Husbandry
JULIAN C. CRANE	Horticulture
LOWELL T. CREWS	Chemistry
THOMAS J. DAVIES	Agricultural Economics
JOHN D. DRAPER	Chemistry
DAVID GEORGE DRAWBAUGH, JR.	Chemistry
CHARLES M. EAKER	Chemistry
FELIX FREDERICK EHRLICH	Chemistry
MICHAEL J. FILLIPI	Chemistry
LEX B. GOLDEN	Zoology
WILLIAM P. GOTTLIEB	Soils
ALBERT GREENFIELD	Business Administration
WILLIAM H. GRIGGS	Business Administration
SAMUEL GROBER	Horticulture
ALBERT C. GROSCHKE	Botany
HILLMAN C. HARRIS	Poultry Husbandry
HAROLD E. HENSEL	Chemistry
CARL W. HESS	Animal and Dairy Husbandry
ROBERT E. JONES	Poultry Husbandry
DANIEL KAUFMAN	Botany
JOHN J. LANDER	Chemistry
FREDERIC JOHN LINNIG	Chemistry
RAYMOND I. LONGLEY	Chemistry
JAMES A. MARVEL	Chemistry
MARTIN H. MUMA	Poultry Husbandry
ROBERT MURDICK	Entomology
WILLIAM A. NOLTE	Mathematics
JOHN S. NOWOTARSKI	Bacteriology
EDWARD ORBAN	Poultry
SELMER PETERSON	Chemistry
MAX RUBIN	Chemistry
VLADIMIR SHUTAK	Poultry
FRANCIS C. STARK	Horticulture
ROBERT N. STEWART	Horticulture
	Botany

INSTRUCTIONAL STAFF, COLLEGE PARK

DAVID L. STODDARD	Botany
A. H. THOMPSON	Horticulture
JOHN VAN HOOK	Chemistry
GEORGE B. VOGT	Entomology
ALFRED WHITON	Chemistry
PHILLIP J. WINGATE	Chemistry
JOHN PAUL WINTERMOYER	Agronomy
CARROLL C. WOODROW	Chemistry
EDMOND GROVE YOUNG	Chemistry
JOHN A. YOURTEE	Chemistry

Fellows

GEORGE S. ABSHIER	Agricultural Economics
PAUL A. ALBERT	Bacteriology
HARRY ANSPON	Chemistry
FRED FRANK BARTEL	Civil Engineering
JACK S. BIERLY	Education
HILDE M. CHRISTENSEN	Botany
BERNER K. CLARKE	Zoology
LEXEY J. CRAGIN	Bacteriology
LEWIS E. CRONIN	Zoology
LYDIA EVANS	English
WILLIAM H. FORM	Sociology
CLARA GALE GOLDBECK	Chemistry
LEON GOLDMAN	Chemistry
MARGARET T. GOLDSMITH	Bacteriology
WALTER J. HANEY	Botany
CARL J. KUJAWSKI	Sociology
JOSHUA M. LEISE	Bacteriology
RITA CATHERINE MARRON	Mathematics
MARVIN R. MCCLUNG	Poultry Husbandry
ESSIE J. MCCUTCHEON	Zoology
DOROTHY MINTZ	English
EARL LANDSON PARK	Agricultural Economics
LLOYD E. PARKS	Chemistry
HOWARD GEISLER PHILLIPS	Psychology
SIDNEY G. PINESS	Zoology
WILSON H. POWER	Chemistry
D. VINCENT PROVENZA	Entomology
EDWARD L. REED	Bacteriology
ORR E. REYNOLDS	Zoology
ELIZABETH RUNNER	Home Economics
WALTER HENRY SCHULER	Political Science
ROGER SNYDER	Bacteriology
RICHARD E. TILLER	Zoology
RICHARD TOLLEFSON	Chemistry
MARTIN M. WINBURY	Zoology
CONRAD YOCUM	Botany

SECTION I—General

PRELIMINARY INFORMATION

The University of Maryland, in addition to being a State University, is the "Land-Grant" institution of Maryland. The University is co-educational in all of its branches.

College Park

The undergraduate colleges and the Graduate School of the University of Maryland are located at College Park, Prince George's County, Maryland, on a beautiful tract of rolling, wooded land, less than eight miles from the heart of the Nation's capital, Washington, D. C. This nearness to Washington, naturally, is of immeasurable advantage to students because of the unusual library facilities afforded by the Library of Congress and the libraries of Government Departments; the privilege of observing at close range sessions of the United States Supreme Court, the United States Senate and the House of Representatives; the opportunity of obtaining almost without effort an abundance of factual data which is constantly being assembled by the numerous agencies of the Federal Government; and, especially in these days of war, the keen sense of interest which necessarily exists when one is in such close proximity to history in the making.

The University is served by excellent transportation facilities, including the main line of the Baltimore and Ohio Railroad, by a division of the Washington, D. C., street railway system, and by several bus lines. The campus fronts on the Baltimore-Washington Boulevard, a section of Federal Route No. 1, which makes the University easily accessible by private automobile travel.

College Park, and the adjacent Calvert Hills and College Heights, constitute a group of fine residential communities close to the University campus, where are located the homes of many of the members of the faculty and staff, and where students who prefer to live off campus may find desirable living accommodations at reasonable rates.

Baltimore

The professional schools of the University—Dentistry, Law, Medicine, Nursing, and Pharmacy—the University Hospital, and the Baltimore Division of the College of Education, are located in a group of splendid buildings, most of them erected in recent years, at or near the adjacent corners of Lombard and Greene Streets and Lombard and Redwood Streets, Baltimore, Maryland.

Baltimore, a thriving, modern industrial city of 1,000,000 inhabitants, has an old established culture represented by outstanding educational institutions, libraries, museums, parks, public buildings, and places of historical interest.

Baltimore is justly proud of its well earned reputation as a center of the highest type of professional education, and no finer location could be chosen by a young man or young woman desiring to prepare for a professional career.

BRIEF HISTORY OF THE UNIVERSITY

While its advancement in recent years, both in the matter of physical plant facilities and educational standards has been especially rapid, the University has behind it a long and honorable history.

The history of the present University is the history of two institutions; the old privately-owned and operated University of Maryland in Baltimore and the Maryland State College (formerly Maryland Agricultural College) at College Park. These institutions were merged in 1920.

In 1807 the College of Medicine of Maryland was organized, the fifth medical school in the United States. The first class was graduated in 1810. A permanent home was established in 1814-1815 by the erection of the building at Lombard and Greene Streets in Baltimore, the oldest structure in America devoted to medical teaching. Here was founded one of the first medical libraries (and the first medical school library) in the United States. In 1812 the General Assembly of Maryland authorized the College of Medicine of Maryland to "annex or constitute faculties of divinity, law, and arts and sciences," and by the same act declared that the "colleges or faculties thus united should be constituted an university by the name and under the title of the University of Maryland." By authority of this act, steps were taken in 1813 to establish "a faculty of law," and in 1823 a regular school of instruction in law was opened. Subsequently there were added: in 1882 a Department of Dentistry which was absorbed in 1923 by the Baltimore College of Dental Surgery (founded in 1840, the first dental school in the world); in 1889 a School of Nursing; and in 1904 the Maryland College of Pharmacy (founded in 1841, the third oldest pharmacy college in the United States).

The Maryland State College was chartered in 1856 under the name of the Maryland Agricultural College, the second agricultural college in the Western Hemisphere. For three years the College was under private management. In 1862 the Congress of the United States passed the Land Grant Act. This act granted each State and Territory that should claim its benefits a proportionate amount of unclaimed western lands, in place of scrip, the proceeds from the sale of which should apply under certain conditions to the "endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This grant was accepted by the General Assembly of Maryland, and the Maryland Agricultural College was named as the beneficiary of the grant. Thus the College became, at least in part, a State institution. In the fall of 1914 control was taken over entirely by the State. In 1916 the General Assembly granted a new charter to the College, and made it the Maryland State College.

In 1920, by an act of the State Legislature, the University of Maryland was merged with the Maryland State College, and the resultant institution was given the name, University of Maryland.

All the property formerly held by the old University of Maryland was turned over to the Board of Trustees of the Maryland State College, and the name was changed to the Board of Regents of the University of Maryland. Under this charter every power is granted necessary to carry on an institution of higher learning and research. It provides that the University shall receive and administer all existing grants from the Federal Government for education and research and all future grants which may come to the State from this source.

THE UNIVERSITY YEAR—NEW THREE SEMESTER PLAN

The University of Maryland operates on a three semester basis. By attending all semesters a student may, in most curricula, complete his university training in two and two-thirds years. The Engineering curricula require three years.

Under the new plan, the academic year is divided into three terms of approximately fifteen weeks each. The summer semester is further divided into two equal parts of approximately seven and one-half weeks each, for the convenience of school teachers and others who may desire to spend a part of their summer vacation in study.

SCHEDULE OF CLASSES

In connection with the accelerated program, the following time schedule of classes will be observed:

1st period	8:00- 8:50 A. M.
2nd period	9:00- 9:50 A. M.
3rd period	10:00-10:50 A. M.
4th period	11:00-11:50 A. M.
Lunch Hour	11:50 A. M.-12:50 P. M.
5th period	12:50- 1:40 P. M.
6th period	1:50- 2:40 P. M.
7th period	2:50- 3:40 P. M.
8th period	3:50- 5:00 P. M.

Military Drill is held on Tuesdays and Thursdays, 6th and 7th periods.
Physical Education program—8th period.

ADMINISTRATIVE ORGANIZATION OF THE UNIVERSITY

The *government* of the University is, by law, vested in a Board of Regents, consisting of eleven members, appointed by the Governor of the State, each for a term of nine years.

The *administration* of the University is vested in the President.

The Deans, Directors and other principal officers of the University form the General Administrative Board. This group serves in an *advisory* capacity to the President.

The *University faculties* are composed of the Deans and the instructional staffs of each college and school, including the University Librarian, and any assistant librarians who perform teaching duties.

Following is a list of the administrative divisions of the University:

At College Park	At Baltimore
College of Agriculture	School of Dentistry
College of Arts and Sciences	School of Law
College of Commerce	School of Medicine
College of Education	School of Nursing
College of Engineering	School of Pharmacy
College of Home Economics	University Hospital
Graduate School	College of Education (Baltimore Division)
Summer Session	Maryland State Board of Agriculture
Department of Military Science and Tactics	
Agricultural Experiment Station	
Agricultural and Home Economics Extension Service	

State-Wide Activities

The Agricultural and Home Economics Extension Service maintains local representatives in every county of the State. These representatives, County Agents and Home Demonstration Agents, provide expert assistance to farmers and farm families in their areas and, when necessary, call upon the large staff of specialists at the headquarters of the Extension Service at College Park.

The Live Stock Sanitary Service, which is charged with responsibility for the control and eradication of diseases of live stock and poultry, maintains local veterinary inspectors throughout the State, in addition to specialists and laboratory technicians at the main laboratory at College Park and the branch laboratories in Salisbury, Centreville and Baltimore.

PHYSICAL FACILITIES—GROUNDS, BUILDINGS AND EQUIPMENT

College Park

Grounds. The University grounds at College Park comprise 600 acres. A broad rolling campus is surmounted by a commanding hill which overlooks a wide area and insures excellent drainage. Most of the buildings are located on this eminence, and the adjacent grounds are laid out attractively in lawns and terraces ornamented with shrubbery and flower beds. Below the brow of the hill, on either side of the Washington-Baltimore Boulevard, lie the drill grounds and the athletic fields.

Approximately 300 acres are used for research and teaching in horticulture, agriculture, dairying, livestock, and poultry; and an additional 500 acres for plant research work are located on a farm five miles northwest of the campus.

Buildings. The buildings comprise about 30 individual structures, which provide facilities for the several activities and services carried on at College Park.

Administration and Instruction. This group consists of the following buildings: *Administration Building*, which accommodates the Office of the

President, Dean of Men, Comptroller, Registrar, Director of Admissions, Director of Athletics, and Alumni Secretary; *Agriculture Building*; which houses the College of Agriculture, Agricultural and Home Economics Extension Service, and Auditorium; *Arts and Sciences Building*; *Engineering Building*; *Morrill Hall*, which houses a portion of the work in the Sciences; *Poultry Building*; *Horticulture Building*; *Dairy Building*; *Dean of Women's Building*, in which are the offices of the Dean of Women and her staff; *Music Building*, which provides accommodations for the Department of Music, the student band, and glee club; *Home Economics Building*; *Chemistry Building*, in which are located laboratories and classrooms for instruction in chemistry, and laboratories for analysis of feeds, fertilizers, and lime; and *College of Education Building*. A new *Shop Building*, to house the Work Experience Program of the National Youth Administration, which has for its objective the training of workers for war industries, has just been completed.

Experiment Station. The headquarters for the Agricultural Experiment Station are in the Agriculture Building. The laboratories and green houses for this work are located in various buildings on the campus.

Physical Education. This group consists of *The Ritchie Coliseum*, which provides quarters for all athletic teams, an athletic office, trophy room, and visiting team rooms, together with a playing floor and permanent seating arrangements for 4,262 persons; *Byrd Stadium*, with a permanent seating capacity of 8,000, is furnished with rest rooms for patrons, dressing rooms, and equipment for receiving and transmitting information concerning contests in progress; *Gymnasium-Armory*, used in part by the Military Department, and for physical education work for men; and the *Girls' Field House*, for all girls' sports. Playing and practice fields and tennis courts are adjacent to the field houses.

Dormitories. The men's dormitory group, consisting of six buildings, of brick, fireproof construction, provides accommodations for 460 men students. The women's residence group consists of two modern dormitories of Colonial architecture, accommodating 228 women students. These are designated as Margaret Brent Hall and Anne Arundel Hall.

Rosborough Inn. This historic Inn, built in 1798, is the oldest building on the campus and for many years housed the Agricultural Experiment Station. It recently was restored and is now one of the most beautiful and interesting buildings on the campus.

Service Structures. This group includes the *Central Heating Plant*; *Plant Maintenance and Operations Building*; *Infirmery*, with accommodations for forty patients, physician's office, operating room, and nurses' quarters; and *Dining Hall*.

United States Bureau of Mines. The Eastern Experiment Station of the United States Bureau of Mines is located on the University grounds. The general laboratories are used for instruction purposes in Engineering as well as by the United States Government for experimental work. The building contains a geological museum, and a technical library. (See Section VI.)

United States Fish and Wildlife Service Laboratory. The technological research laboratory of the U. S. Fish and Wildlife Service is located on the University campus. It contains laboratories for conduct of research in the fisheries dealing with chemical, chemical engineering, bacteriological, nutritional, and biological subjects. Through a cooperative arrangement with the University it is possible for students, who have undergraduate degrees, to pursue studies toward graduate degrees in any of the subjects mentioned above. (See Section VI.)

Baltimore

The group of buildings, located in the vicinity of Lombard and Greene Streets, provides available housing for the Baltimore division of the University. The group comprises the original *Medical School Building*, erected in 1814; the *Old Hospital*, now used as a dispensary; the *New University Hospital* with approximately 450 beds; the *Frank C. Bressler Research Laboratory*; the *Dental and Pharmacy Building*; the *Nurses' Home*; the *Law School Building*; *Davidge Hall*, which houses the Medical library; and the *Administration Building*.

LIBRARY FACILITIES

Libraries are located at both the College Park and Baltimore divisions of the University.

The General Library at College Park, completed in 1931, is an attractive, well equipped and well lighted structure. The main reading room on the second floor seats 236, and has about 5,000 reference books and bound periodicals on open shelves. The five-tier stack room is equipped with carrels and desks for the use of advanced students. About 12,000 of the 100,000 volumes on the campus are shelved in the Chemistry and Entomology departments, the Graduate School, and other units. Over 900 periodicals are currently received.

Facilities in Baltimore consist of the Libraries of the School of Dentistry, containing some 9,000 volumes; the School of Law, 18,500 volumes; the School of Medicine, 22,000 volumes; and the School of Pharmacy, 9,000 volumes. The Medical Library is housed in Davidge Hall; the remaining three libraries have adequate quarters in the buildings of their respective schools, where they are readily available for use. Facilities for the courses in Arts and Sciences are offered jointly by the Libraries of the Schools of Dentistry and Pharmacy.

The libraries of the University total in the aggregate about 158,500 bound volumes with large collections of unbound journals. The General Library is a depository for publications of the United States Government, and numbers some 15,000 documents in its collections.

The University Library System is able to supplement its reference service by borrowing material from other libraries through Inter-Library Loan or Bibliofilm Service, or by arranging for personal work in the Library of Congress, The United States Department of Agriculture Library, and other agencies in Washington.

ACADEMIC REGULATIONS AND PROCEDURE

ADMISSION

METHOD OF APPLICATION

Information may be had from the Director of Admissions, either in person or by correspondence, concerning planning secondary school courses to meet entrance requirements or problems relating to admission.

Undergraduate Schools: Applicants for admission to the colleges of Agriculture, Arts and Sciences, Commerce, Education, Engineering, and Home Economics should communicate with the Director of Admissions, University of Maryland, College Park.

Graduate School: Those seeking admission to the Graduate School should address the Dean of the Graduate School, University of Maryland, College Park.

Professional Schools: Information about admission to the professional schools in Baltimore may be found in Section III.

Age of Applicants: A student who is less than sixteen years of age must live with his parents or guardian.

ADMISSION PROCEDURE

Applicants from Secondary Schools: Procure an application blank from the Director of Admissions. Fill in personal data requested and ask your principal or headmaster to enter your secondary school record and mail the blank to the Director of Admissions.

To avoid delay, it is suggested that applications be filed not later than June 1 for the Summer semester, August 1 for the Fall semester, and January 1 for the Spring semester. Applications from students completing their last semester of secondary work are encouraged. If acceptable, supplementary records may be sent upon graduation.

Applicants from Other Colleges and Universities: Secure an application blank from the Director of Admissions. Fill in personal data requested and ask secondary school principal or headmaster to enter secondary school record and send the blank to the Director of Admissions. Request the Registrar of the College or University attended to send a transcript to the Director of Admissions, College Park.

Time of Admission: New students should plan to enter the University at the beginning of the summer semester, in June, if possible. Students will, however, be admitted at the beginning of any semester.

Registration: New students will register for the summer semester on Friday, June 19, and for the fall semester on Thursday, Friday and Saturday, October 8, 9 and 10. The English placement, psychological, and other required tests are a part of the registration procedure.

The Freshman Week program includes registration, placement and aptitude tests, physical examinations, assemblies, and the President's reception.

ADMISSION OF FRESHMEN

Admission by Certificate: Graduates of secondary schools accredited by regional associations or the State Department of Education will be admitted by certificate upon the recommendation of the principal. Graduates of out-of-state schools should have attained college certification marks, such marks to be not less than one letter or ten points higher than the passing mark.

Graduates who fail to obtain the principal's recommendation will be considered by the Committee on Admissions. Supplementary information, including aptitude tests, will determine whether they are eligible for admission.

Admission by Examination: Applicants, who have passed the examinations set by the College Entrance Examination Board, 431 West 117th Street, New York City; the Regents of the University of the State of New York, Albany; or the Department of Public Instruction of the State of Pennsylvania, Harrisburg will be admitted upon presentation of the proper credentials.

ADMISSION TO ADVANCED STANDING

Only students in good standing as to scholarship and conduct are eligible to transfer. Advanced standing is assigned to transfer students from accredited institutions under the following conditions:

1. A minimum of one year of resident work of not less than 30 hours is necessary for a degree.
2. The University reserves the right at any time to revoke advanced standing if the transfer student's progress is unsatisfactory.

ADMISSION REQUIREMENTS

Below are shown (1) requirements for admission to the various undergraduate curricula, and (2) the curricula offered in the different colleges. The letter following the curriculum indicates the column in the table where the particular requirements are given.

	1.				
	A	B	C	D	E
English	4	4	4	4	4
Algebra	1		*2	1	1
Plane Geometry.....	1		1	1	
Solid Geometry.....			*½		
Mathematics		2			
History	1	1	1	1	1
Science	1	1	1	1	1
Foreign Language.....				2	
Stenography					**2
Typewriting					**1
Bookkeeping					1
Electives	8	8	6½	6	5
Total	16	16	16	16	16

*An applicant deficient a second unit in algebra and solid geometry may be admitted to the College of Engineering, and to the curricula in Chemistry, Mathematics, and Physics but will be obliged to make up the second unit of algebra and the solid geometry at the beginning of the second semester of the freshman year.

**Students preparing to teach in the field of Business Practice may substitute stenography and typewriting.

College of Agriculture

Agricultural Chemistry—C
 Agricultural Education and Rural Life—B
 Agriculture-Engineering—C
 Agriculture, General—B
 Agronomy
 Farm Crops—A
 Soils—A
 Animal Husbandry—B

†Botany

General Botany and Morphology—A

Plant Pathology—A

Plant Physiology and Ecology—A

Dairy Husbandry

Dairy Manufacturing—B

Dairy Production—B

†Entomology—A

Farm Management—B

Horticulture

Floriculture and Ornamental Horticulture—B

Pomology and Olericulture—B

Poultry Husbandry—B

Preforestry—A

Preveterinary—A

College of Arts and Sciences

Bacteriology—A

#Botany—A

||Chemical Engineering—C

Chemistry—C

†Economics—A

§Education—A

English—A

#Entomology—A

Food Technology—A

French—A

General Biological Sciences—A

General Physical Sciences—C

German—A

History—A

Latin—A

College of Arts and Sciences (con'd)

Mathematics—C

Physics—C

Political Science—A

Predental—A

‡Prelaw—A

Premedical—D

Prenursing—A

Psychology—A

Sociology—A

Speech—A

Spanish—A

Zoology—A

College of Commerce

Accounting—A

Agricultural Economics—A

Cooperative Organization and Administration—A

†Economics—A

Finance—A

General Business—A

Marketing and Sales Administration—A

‡Prelaw—A

College of Education

†Arts and Sciences—A

Commercial—E

¶Home Economics—B

Industrial—A (also in Baltimore)

Physical—A

College of Engineering

†Chemical—C

Civil—C

Electrical—C

Mechanical—C

Mechanical with Aeronautical option—C

College of Home Economics

§Education—B

Extension—B

Foods and Nutrition—B

General Home Economics—B

Institution Management—B

Practical Art—B

Textiles and Clothing—B

Special Students: Applicants who are at least twenty-one years of age, and who have not completed the usual preparatory course, may be admitted to such courses as they seem fitted to take. Special students are ineligible to matriculate for a degree until entrance requirements have been satisfied.

#Also College of Agriculture. †Also College of Arts and Sciences. ‡Also College of Commerce. §Also College of Education. ||Also College of Engineering. ¶Also College of Home Economics.

Unclassified Students: Applicants who meet entrance requirements but who do not wish to pursue a program of study leading to a degree are eligible for admission to pursue courses for which they have met prerequisites.

REQUIREMENT IN MILITARY INSTRUCTION

All male students classified academically as freshmen or sophomores, who are citizens of the United States, who are physically fit to perform military duty and who are not less than 14 or more than 26 years of age, are required to take basic military training for a period of two years as a prerequisite to graduation. Any student excused from taking basic military instruction because of physical disability must take physical education.

Graduation Requirements for Students Excused from Military Instruction and Physical Education

Students excused from basic military training and physical education without academic credit are required to take an equivalent number of credits in other subjects, so that the total credits required for a degree in any college shall not be less than 126 hours. The substitution must be approved by the dean of the college concerned.

REQUIREMENT IN PHYSICAL EDUCATION FOR WOMEN

All women students whose bodily condition indicates that they are physically fit for exercise are required to take physical education for a period of two years, as a prerequisite to graduation.

DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students, if at the time of their registration their parents* have been residents of this State† for at least one year.

Adult students are considered to be resident students, if at the time of their registration they have been residents of this State† for at least one year; provided such residence has not been acquired while attending any school or college in Maryland.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents* move to and become legal residents of this State†, by maintaining such residence for at least one full calendar year. However, the right of the student (minor) to change from a non-resident to a resident status must be established by him prior to registration for a semester in any academic year.

*The term "parents" includes persons who, by reason of death or other unusual circumstances, have been legally constituted the guardians of and stand *in loco parentis* to such minor students.

†Students in the College Park Colleges who are residents of the District of Columbia are charged two-fifths of the non-resident fee charged to other non-residents.

REGULATION OF STUDIES

Course Numbers. Courses are designated by numbers as follows:

Group I numbered 1 to 49—courses primarily for freshmen, and sophomores.

Group II numbered 50 to 99—courses for juniors and seniors.

Group III numbered 100 to 199—courses for advanced undergraduates (well-qualified juniors and seniors) and graduates.

Group IV numbered 200 to 299—courses for graduates only.

Courses designated by the letters "f" and "s" following the numbers, are unit courses, and both the "f" (first) and the "s" (second) parts must be completed before credit is allowed for the course.

Schedule of Courses. A semester time schedule of courses, giving days, hours, and rooms, is issued as a separate pamphlet at the beginning of each semester. Classes are scheduled beginning at 8.00 A. M.

Definition of Credit Unit. The semester hour, which is the unit of credit in the University, is the equivalent of a subject pursued one period a week for one semester. Two or three periods of laboratory or field work are equivalent to one lecture or recitation period. The student is expected to devote three hours a week in classroom or laboratory, including outside preparation, for each credit hour in any course.

Normal Student Load. The normal student load is from 15 to 19 semester hours, according to curriculum and year. These variations are shown in the appropriate chapters in Section II describing the several divisions of the University. No student may carry either more or less than the prescribed number of hours without specific permission from the dean of his college.

Examinations. During the war emergency, the examination period at the close of the semester has been discontinued and periodic examinations and tests will be given during regularly scheduled instructional periods. Students are required to use the prescribed type of examination book in these tests.

Marking System. The following symbols are used for marks: A, B, C, and D, Passing; F, Failure; I, Incomplete.

Mark A denotes superior scholarship; mark B, good scholarship; mark C, fair scholarship and mark D, passing scholarship.

In computing scholastic averages, numerical values are assigned as follows: A—4; B—3; C—2; D—1; F—0.

At least three-fourths of the credits required for graduation must be earned with marks of A, B, and C. A student who receives the mark of D in more than one-fourth of his credits must take additional courses or repeat courses until he has met these requirements.

In the case of a candidate for a combined degree or of a transfer student with advanced standing, a mark of D will not be recognized for credit towards a degree in more than one-fourth of the credits earned at this institution.

REPORTS

Written reports of grades are sent by the Registrar to parents or guardians at the close of each semester.

DELINQUENT STUDENTS

A student must attain passing marks in fifty per cent of the semester hours for which he is registered, or he is automatically dropped from the University. The registrar notifies the student, his parent or guardian, and the student's dean of this action. A student who has been dropped for scholastic reasons may appeal in writing to the Committee on Admission, Guidance, and Adjustment for reinstatement. The Committee is empowered to grant relief for just cause. A student who has been dropped from the University for scholastic reasons, and whose petition for reinstatement is denied, may again petition after a lapse of at least one semester.

The University reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his or her health, or to the health of others, or whose conduct is not satisfactory to the authorities of the University. *Students of the last class may be asked to withdraw even though no specific charge be made against them.*

According to University regulations, excessive absence from any course is penalized by failure in that course. Students who are guilty of persistent absence from any course will be reported to the President or to his appointed representative for final disciplinary action.

JUNIOR STANDING

No student will be certified as a junior, or be permitted to select a major or minor, or to continue in a fixed curriculum until he or she shall have passed with an average grade as high as C (2.0) the minimum number of semester credits required for junior standing in any curriculum.

DEGREES AND CERTIFICATES

The University confers the following degrees: Bachelor of Arts, Bachelor of Science, Master of Education, Master of Arts, Master of Science, Master of Business Administration, Doctor of Philosophy, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Bachelor of Laws, Doctor of Medicine, Doctor of Dental Surgery, and Bachelor of Science in Pharmacy.

Students in the two-year and three-year curricula are awarded certificates.

The requirements for graduation vary according to the character of work in the different colleges and schools. For full information regarding the requirements for graduation in the several colleges consult the appropriate chapters in Section II.

No baccalaureate degree will be awarded to a student who has had less than one year of resident work in this University. The last thirty credits of any curriculum leading to a baccalaureate degree must be taken in residence at the University of Maryland.

At least three-fourths of the credits required for graduation must be earned with grades of A, B, and C.

In the case of a candidate for a combined degree or of a transfer student with advanced standing, a grade of D will not be recognized for credit towards a degree in more than one-fourth of the credits earned at this institution.

Each candidate for a degree must file in the office of the Registrar, before March 1st, a formal application for a degree. Candidates for degrees must attend a convocation at which degrees are conferred and diplomas are awarded. Degrees are conferred in absentia only in exceptional cases.

EXPENSES AND FEES

General

All checks or money orders should be made payable to the University of Maryland for the exact amount of the semester charges.

In cases where students have been awarded Legislative Scholarships or University Grants, the amount of such scholarship or grant will be deducted from the bill for semester charges.

All fees are due and payable at the time of registration, and students should come prepared to pay the full amount of the semester charges. No student will be admitted to classes until such payment has been made.

The University reserves the right to make such changes in fees and other charges as may be found necessary. For example, board and lodging may vary from semester to semester, although every effort will be made to keep the costs to the student as low as possible.

No degree will be conferred upon, nor any diploma or certificate awarded to, a student who has not made satisfactory settlement of his account.

Fees for Summer Session. See Section II.

Fees for Professional Schools in Baltimore. See Section III.

Fees for Evening Courses. See Section II.

FEES FOR UNDERGRADUATE STUDENTS

Maryland Residents

	Summer Semester	Fall Semester	Spring Semester
Fixed Charges.....	\$ 72.50	\$ 67.50	\$ 77.50
Athletic Fee.....	5.00	15.00	.....
Special Fee.....	5.00	10.00	.....
Student Activities Fee.....	5.00	10.00	.....
Infirmary Fee.....	2.50	5.00	.....
Post Office Fee.....	1.00	2.00	.....
Advisory and Testing Fee.....	.50	.50	.50
	<hr/> \$91.50	<hr/> \$110.00	<hr/> *\$ 78.00

District of Columbia Residents

Non-Resident Fee for students from District of Columbia in addition to fees shown above.....	\$25.00	\$ 25.00	\$ 25.00
	<hr/> \$116.50	<hr/> \$135.00	<hr/> *\$103.00

Residents of Other States and Countries

Non-Resident Fee for students from other states and countries in addition to fees shown above.....	\$ 62.50	\$ 62.50	\$ 62.50
	<hr/> \$154.00	<hr/> \$172.50	<hr/> *\$140.50

Board and Lodging

Board	\$135.00	\$135.00	\$135.00
Dormitory Room	\$38.00 to 55.00	\$38.00 to 55.00	\$38.00 to 55.00
	<hr/> \$173.00 to 190.00	<hr/> \$173.00 to 190.00	<hr/> \$173.00 to 190.00

The Special Fee is used for improving the University grounds and the physical training facilities and for other University projects that have direct relationship to student welfare.

The Students Activities Fee is included at the request of the Student Government Association. Its payment is not mandatory, but it is really a matter of economy to the student, since it covers subscription to the student newspaper, the literary magazine and the year book; class dues, including admission to class dances; and admission to the performances of the musical and dramatic clubs.

*Students entering the University for the spring semester will pay the following additional fees: Athletic, \$7.50; Special, \$5.00; Student Activities, \$8.00; Infirmery, \$2.50; Post Office Box, \$1.00.

OTHER FEES AND CHARGES

Matriculation Fee for undergraduates, payable at time of first registration in the University.....	\$ 5.00
Diploma Fee for Bachelor's degree, payable just prior to graduation.....	\$10.00
Special Fee for students enrolled in Pre-Medical or Pre-Dental course	
For Residents of Maryland.....	\$25.00
For Residents of the District of Columbia.....	\$25.00
For Residents of other states or countries.....	\$62.50
Fee for part time students per credit hour.....	\$ 6.00
(The term "part time students" is interpreted to mean students taking 6 semester credit hours or less. Students carrying more than 6 semester hours pay the regular fees.)	
Late Registration Fee.....	\$3.00 to \$5.00
(All students are expected to complete their registration, including the filing of class cards and payment of bills, on the regular registration days. Those who complete their registration one day late are charged a fee of \$3.00, and those who are more than one day late will be charged \$5.00.)	
Fee for change in registration after first week of instruction.....	\$1.00
Fee for failure to report for medical examination appointment.....	\$2.00
Special Examination Fee—to establish college credit—per semester hour	\$2.00
Makeup Examination Fee—(For students who are absent during any class period when tests or examinations are given).....	\$1.00
Transcript of Record Fee.....	\$1.00
Laboratory Fees—The laboratory fee for each course is shown under "Description of Courses," Section II. These fees range in amount from \$1.00 to \$8.00.....	\$1.00 to \$8.00
Property Damage Charge—Students will be charged for damage to property or equipment. Where responsibility for the damage can be fixed, the individual student will be billed for it; where responsibility can not be fixed, the cost of repairing the damage or replacing equipment will be prorated.	
Library Charges:	
Fine for failure to return book from general library before expiration of loan period.....	.05 per day
Fine for failure to return book from Reserve Shelf before expiration of loan period:	
First hour overdue.....	.25
Each additional hour overdue.....	.05
In case of loss or mutilation of a book, satisfactory restitution must be made.	

Text books and classroom supplies—These costs vary with the course pursued, but will average per semester.....\$18.00

FEES FOR GRADUATE STUDENTS

Tuition charge for students carrying more than 8 semester credit hours.....	\$50.00
Tuition charge for students carrying 8 semester credit hours, or less.....	6.00 per credit hour
Matriculation Fee, payable only once, at time of first registration	10.00
Diploma Fee (For Master's degree).....	10.00
Graduation Fee (For Doctor's degree).....	20.00

Notes: Fees, in the Graduate School are the same for all students, whether residents of the State of Maryland or not.
All fees, except Diploma Fee and Graduation Fee, are payable at the time of registration for each semester.
Diploma Fee and Graduation Fee must be paid prior to graduation.

FEES FOR EVENING COURSES

Matriculation Fee (payable once, at time of first registration, by all students—full time and part time; candidates for degrees, and non-candidates).	
For Undergraduates	\$ 5.00
For Graduates	10.00
Tuition Charge—(same for all students) (Limit six hours)	6.00 per credit hour
Laboratory Fees—A small laboratory fee, to cover cost of materials used, is charged in laboratory courses. These fees vary with the course and can be ascertained in any case by inquiry of the Director of Evening Courses, or the instructor in charge of the course.	

REGULATIONS CONCERNING WITHDRAWAL FROM THE UNIVERSITY AND REFUND OF FEES

If a student desires or is compelled to withdraw from the University at any time during the academic year, he should file a formal application for withdrawal, bearing the proper signatures as indicated on the form, with the Registrar's Office. A copy of this withdrawal application form may be obtained from the office of the Dean of the College in which the student is registered, or from the Registrar.

In the case of a minor, withdrawal will be permitted only with the written consent of the student's parent or guardian.

A student who fails to withdraw in the required manner will not be entitled to an honorable dismissal and will forfeit his right to any refund to which he might otherwise be entitled.

Students withdrawing from the University within five days after the beginning of instruction for the semester are granted a full refund of all charges except board and lodging, with a deduction of \$5.00 to cover cost of registration. Board and lodging are refunded on a pro rata basis.

Students withdrawing from the University after five days and before the end of four weeks from the beginning of instruction in any semester will receive a pro rata refund of all charges, less a deduction of \$5.00 to cover cost of registration. After the expiration of the four week period referred to, refunds will be made only for board and lodging. The refund for these items will be on a pro rata basis.

TRANSCRIPTS OF RECORDS

Any student or alumnus may secure a transcript of his scholastic record from the Registrar. No charge is made for the first copy so furnished, but for each additional copy, there is a charge of \$1.00.

Transcripts of records are of two kinds:

- (a) Informal transcripts which may be obtained by the student or alumnus for such personal use as he may wish; and
- (b) Official transcripts, bearing the University seal, which are forwarded, on request, to educational institutions, Government agencies, etc., as attested evidence of the student's record at the University and his honorable dismissal therefrom.

Persons desiring transcripts of records should, if possible, make request of the Registrar for same at least one week in advance of the date when the records are actually needed.

No transcript of a student's record will be furnished in the case of any student or alumnus whose financial obligations to the University have not been satisfied.

STUDENT HEALTH AND WELFARE

STUDENT HEALTH SERVICE

The University recognizes its responsibility for safeguarding the health of its student body and takes every reasonable precaution towards this end. In addition to the physical examinations which are given all students on entrance to the University, health instruction is given to all freshman and sophomore students, and a modern, well equipped infirmary is available for the care of sick or injured students. A small fee is charged undergraduate students for this infirmary service.

Physical Examinations

As soon as possible after the opening of the fall or first semester, as a measure for protecting the general health, all students who enter the undergraduate colleges at College Park are given a physical examination. The examination of the men students is conducted by the University Physician in cooperation with the Physical Education and Military Departments.

The examination of women students is conducted by a woman physician in cooperation with the office of Physical Education for Women. The woman physician has her offices in the Infirmary. She is available for consultation by all women students at hours to be arranged.

Infirmary Service and Regulations

1. All undergraduate students may receive dispensary service and medical advice at the Infirmary during regular office hours established by the physician in charge.

Nurses' office hours, 8 to 10 A.M.—1 to 2 P.M.—4 to 5 P.M.—6 to 8 P.M., daily except Sunday; 10 A.M. to 12 Noon—6 to 7 P.M. Sunday.

Doctor's office hour 12 Noon to 1 P. M. daily except Sunday. Office hour on Sunday by appointment only.

2. A registered nurse is on duty at all hours in the Infirmary. Students are requested to report illnesses during office hours unless the case is an emergency.

3. Students not living in their own homes who need medical attention and who are unable to report to the Infirmary should call one of the University physicians. Such visits will be free of charge except in cases where additional visits are necessary. For such additional visits as may be necessary, the University physician will make his usual charge.

4. Students not residing in their own homes may, upon the order of the University physician, be cared for in the Infirmary to the extent of the facilities available. Students who live off the campus will be charged a fee of one dollar and a quarter a day.

5. The visiting hours are 10 to 11 A.M. and 7 to 7:30 P.M. daily. Each patient is allowed only three visitors at one time. No visitor may see any patient until permission is granted by the nurse in charge.

6. Hospitalization is not available at the Infirmary for graduate students and employees. Dispensary service, however, is available for graduate students and employees who are injured in University service or University activities.

7. Students living in the dormitories, who are ill and unable to attend classes, must report to the Infirmary, between 8:00 and 9:00 A. M. If they are too ill to go to the Infirmary, they must notify the house mother so that the physician can be called to the dormitory. When possible this should be done before 8:30 A. M. If a student is taken sick at any other time he must report to the Infirmary, before going to his room.

8. For employees of the University who handle food and milk, the University reserves the right to have its physician make physical examinations, and such inspections of sanitary conditions in homes as in the opinion of the University physician, may be desirable.

In case of illness requiring a special nurse or special medical attention, the expense must be borne by the student.

LIVING ARRANGEMENTS

Dormitories:

Room Reservations. All new students desiring to room in the dormitories should request room application cards. Men should apply to the Director of Admissions, and women to the Office of the Dean of Women. When the room application card is returned, it must be accompanied by a \$15 deposit. This fee will be deducted from the first semester charges when the student registers. Room reservations not claimed by freshmen or upper-classmen on their respective registration days will be cancelled. A room will be held by special request until after classes begin providing the dormitory office is notified by the first day of registration. Room reservation fees will not be refunded if the request is received later than one month before the first day of registration for the semester for which arrangements were made.

Reservations by students in attendance at the University should be made at least two weeks before the close of the preceding semester. New students are urged to attend to their housing arrangements well in advance of registration.

Men. All men students who have made dormitory reservations should report to the dormitory office in "A" section, Calvert Hall.

All freshmen students, except those who live at home, are required to room in the dormitories.

Women. There are two attractive dormitories of colonial architecture for women, each under the supervision of a matron and the Office of Dean of Women. The buildings are fire resistant; the rooms, single, double, and a few triple, have hot and cold running water and are tastefully furnished.

Applications for rooms are considered only when a student has been fully admitted academically to the University. A student for whom a reservation

has been made should report at registration time to the dormitory to which she has been assigned.

All housing arrangements for women students must be approved by the Office of the Dean of Women.

Equipment. Students assigned to dormitories should provide themselves with sufficient single blankets, at least two pairs of sheets, a pillow, pillow cases, towels, a laundry bag, a shoe bag, and a waste paper basket.

The individual student must assume responsibility for all dormitory property assigned to him. Any damage done to the property other than that which would result from ordinary wear and tear will be charged to the student concerned.

It is understood that all housing arrangements which are made for the fall semester are binding for the spring semester also.

Each student will be furnished a key for his room for which a deposit of \$1.00 will be made. This deposit will be returned in exchange for the key at the end of the year.

Cleaning service is furnished by the University.

Laundry. The University does not provide laundry service and each student is responsible for his or her own laundry. There are several reliable laundry concerns in College Park; or, if a student prefers, he may send his laundry home. Women students may, if they wish, do their own laundry in the laundry room in each dormitory.

Personal baggage sent via the American Express and marked with a dormitory address will be delivered when the student concerned notifies the College Park express office of his arrival.

Off-Campus Houses.

Men: Only upper classmen are allowed to live in off-campus houses. Inquiries about these should be addressed to the Office of the Dean of Men.

Women: Undergraduate women students who cannot be accommodated in the women's dormitories are referred to private homes which are registered in the Office of the Dean of Women as "Off-Campus Houses for Undergraduate Women." The householders in these homes have agreed to maintain the same rules and regulations as in the dormitories but business arrangements are made entirely between the student and the householder. Students and their parents should plan to see these accommodations personally and talk with the householder before making final arrangements. No woman student should enter into an agreement with a householder without first ascertaining at the Office of the Dean of Women that the house is on the approved list.

Meals

Meals. All students who live in University dormitories must board at the University Dining Hall.

Students not living in the dormitories may make arrangements to board by the semester at the dining hall, get their meals in the University Cafeteria, or at eating establishments in College Park. A few "off-campus houses" provide board as well as room.

OFFICE OF THE DEAN OF MEN

The Office of the Dean of Men exists for the purpose of furnishing friendly counsel and helpful guidance to male students in connection with any of their personal problems, especially those relating to financial need, employment, housing, etc.

This office also handles for male students matters of student discipline and infringement of University regulations.

OFFICE OF THE DEAN OF WOMEN

The Office of the Dean of Women serves in the same capacity for women students as does the Office of the Dean of Men for men students. In addition, it coordinates the interests of women students, handles matters of chaperonage at social functions, regulation of sorority rushing, etc. It has supervision over all housing accommodations for women students, whether on or off campus.

SCHOLARSHIPS AND FELLOWSHIPS**Legislative Scholarships**

By Act of the Maryland Legislature in 1941, members of the Legislature were given the privilege of awarding scholarships to worthy students from their respective districts. Members of the House of Delegates may award one four-year scholarship. Members of the Senate may award three four-year scholarships, only one to be appointed in any given year.

Students desiring these scholarships are requested to contact either a State Senator or a member of the House of Delegates in their respective districts.

University Grants

The University of Maryland offers a limited number of scholarships covering fixed charges to graduates of high schools or preparatory schools.

Since the University of Maryland is interested in encouraging students who show promise, these scholarships are awarded on the basis of a student's contribution to his high school, preparatory school, or University; his scholastic average; special talents; and evidence of leadership.

Albright Scholarship

A scholarship, known as the Victor E. Albright Scholarship, is awarded to a boy or girl of good character, born and reared in Garrett County and graduated from a high school in Garrett County during the year in which the scholarship is awarded. This scholarship is worth \$200.00 a year. The names of prospective scholars are forwarded to the Scholarship Committee by the high school principals of Garrett County and the selection is made by lot. The recipient of this award must maintain a B average for each semester in order to keep the scholarship.

Sears Roebuck Agricultural Foundation Grants

A limited number of scholarships have been made available by the Sears Roebuck Agricultural Foundation for young men who have been reared on farms in the State of Maryland and who enroll as freshmen in the College of Agriculture. These grants apply only in the freshman year.

Applications may be obtained from the Committee on Scholarships at the University.

Graduate Fellowships

For information concerning Graduate Fellowships, see Graduate School, Section II.

STUDENT EMPLOYMENT

A considerable number of students earn some money through employment while in attendance at the University. No student should expect, however, to earn enough to pay all of his expenses. The amounts vary, but some earn from one-fourth to three-fourths of all the required funds.

Generally the first year is the hardest for those desiring employment. After one has demonstrated that he is worthy and capable, there is much less difficulty in finding work.

Under the provisions of the National Youth Administration, the University has been enabled to offer needy students a limited amount of work on special projects, the remuneration for which averages about \$13 monthly. It is not known how long the Government will continue to extend this aid.

The University assumes no responsibility in connection with employment. It does, however, make every effort to aid needy students. The nearby towns and the University are canvassed, and a list of available positions is placed at the disposal of students. Applications for N. Y. A., or other employment should be made to the Dean of Men.

STUDENT LOAN FUNDS

The Kappa Kappa Gamma Sorority offers annually a Sigma Delta loan of one hundred dollars, without interest, to a woman student registered in the University of Maryland and selected by a Scholarship Committee—the

said Committee to be composed of the deans of all Colleges in which girls are registered, including the Dean of Women and the Dean of the Graduate School.

A. A. U. W. Loan. The College Park Branch of the American Association of University Women maintains a fund from which loans are made to women students of junior or senior standing who have been in attendance at the University of Maryland for at least one year. Awards in varying amounts are made on the basis of scholarship, character, and financial need. Applications should be made to the Scholarship Committee of the A. A. U. W. on blanks which may be obtained through the office of the Dean of Women.

Catherine Moore Brinkley Loan Fund. Under the provisions of the will of Catherine Moore Brinkley a loan fund has been established, available for worthy students who are natives and residents of the State of Maryland, studying mechanical engineering or agriculture at the University of Maryland.

This loan fund is administered by the Scholarship and Student Aid Committee. Details concerning loans and application for loans should be made to the Chairman of the Scholarship Committee.

Home Economics Loan Fund. A small loan fund, established by the District of Columbia Home Economics Society, is available for students majoring in Home Economics. It is administered by the Scholarship and Student Aid Committee.

In addition to the above loans there are from time to time others that are made available by various women's organizations in the State of Maryland. Information regarding these may be secured upon request from the Office of the Dean of Women.

HONORS AND AWARDS

SCHOLASTIC AWARDS

Scholarship Honors. Final honors for excellence in scholarship are awarded to one-fifth of the graduating class in each college. *First honors* are awarded to the upper half of this group; *second honors* to the lower half. To be eligible for honors, at least two years of resident work are required.

The Goddard Medal. The James Douglas Goddard Memorial Medal is awarded annually to the resident of Prince Georges County, born therein, who makes the highest average in his studies and who at the same time embodies the most manly attributes. The medal is given by Mrs. Anne K. Goddard James, of Washington, D. C.

Sigma Phi Sigma Medal. The Delta Chapter of Sigma Phi Sigma Fraternity offers annually a gold medal to the man in the freshman class who makes the highest scholastic average during the first semester.

Alpha Zeta Medal. The Honorary Agricultural Fraternity of Alpha Zeta awards annually a medal to the agricultural student in the freshman class who attains the highest average record in academic work. The mere presentation of the medal does not elect the student to the fraternity, but simply indicates recognition of high scholarship.

Dinah Berman Memorial Medal. The Dinah Berman Memorial Medal is awarded annually to the sophomore who has attained the highest scholastic average of his class in the College of Engineering. The medal is given by Benjamin Berman.

Mortar Board Scholarship Cup. This is awarded to the senior girl who has been at the University for four years, and who has made the highest scholastic average for three and one-half years.

Delta Delta Delta Medal. This sorority awards a medal annually to the girl who attains the highest average in academic work during the sophomore year.

Class of '26 Honor Key. The Class of 1926 of the School of Business Administration of the University of Maryland at Baltimore offers each year a gold key to the senior graduating from the College of Commerce with the highest average for the entire four year course taken at the University of Maryland.

American Institute of Chemists Medal. The American Institute of Chemists awards annually a medal and a junior membership to the graduating student of good character and personality, majoring in chemistry, who has attained the highest average grade in this major subject for the entire undergraduate course, exclusive of credit received for the final semester.

Omicron Nu Sorority Medal. This sorority awards a medal annually to the freshman girl in the College of Home Economics who attains the highest scholastic average during the first semester.

Bernard L. Crozier Award. The Maryland Association of Engineers awards a cash prize of \$25.00 annually to the senior in the College of Engineering who, in the opinion of the faculty, has made the greatest improvement in scholarship during his stay at the University.

Alpha Lambda Delta Award. The Alpha Lambda Delta Award is given to the senior member of the group who has maintained the highest average for the past three and one-half years. She must have been in attendance in the institution for the entire time.

American Society of Civil Engineers Award. The Maryland Section of the American Society of Civil Engineers awards annually a junior membership in the American Society of Civil Engineers to the senior in the Department of Civil Engineering who, in the opinion of the faculty of the Department, is the outstanding student in his class.

Tau Beta Pi Certificate of Merit. The Maryland Beta Chapter of Tau Beta Pi awards annually a certificate of merit to the initiate of the Chapter who, in the opinion of the members, has presented the best thesis during the year.

The Charles B. Hale Dramatic Awards. The Footlight Club recognizes annually the man and woman members of the senior class who have done most for the advancement of dramatics at the University.

Sigma Alpha Omicron Award. This is awarded to the senior student majoring in Bacteriology for high scholarship, character and leadership.

Hillegeist Memorial Award. This is offered annually by Mrs. W. M. Hillegeist in memory of her husband for excellence in English.

CITIZENSHIP AWARDS

Citizenship Prize for Men. An award is presented annually by President H. C. Byrd, a graduate of the Class of 1908, to the member of the senior class who, during his collegiate career, has most nearly typified the model citizen, and has done most for the general advancement of the interests of the University.

Citizenship Prize for Women. The Citizenship Prize is offered by Mrs. Albert F. Woods, wife of a former president of the University of Maryland, to the woman member of the senior class who, during her collegiate career, has most nearly typified the model citizen, and has done most for the general advancement of the interests of the University.

MILITARY AWARDS

Mahlon N. Haines '94 Trophy. This is offered to the major of the winning battalion.

Military Department Award. Gold second lieutenant's insignia to the major of the winning battalion.

The Governor's Cup. This is offered each year by His Excellency, the Governor of Maryland, to the best drilled company.

Company Award. The Reserve Officers' Association, Montgomery County Chapter, awards annually to the captain of the best drilled company of the University, gold second lieutenant's insignia.

The Alumni Cup. The Alumni offer each year a cup to the commanding officer of the best drilled platoon.

Scabbard and Blade Cup. This cup is offered to the commander of the winning platoon.

Class of '99 Gold Medal. The class of 1899 offers each year a gold medal to the member of the battalion who proves himself the best drilled soldier.

A Gold Medal is awarded to the member of the Varsity R. O. T. C. Rifle Team who fired the high score of each season.

A Gold Medal is awarded to the member of the Freshman Rifle Team who fired the high score of each season.

Pershing Rifle Medals are awarded to each member of the winning squad in the squad drill competition.

Pershing Rifle Medals are awarded to the three best drilled students in Pershing Rifles.

Mehring Trophy Rifle Competition. A Gold Medal is awarded to the student firing highest score in this competition. A Silver Medal is given to the student showing greatest improvement during the year in this competition.

ATHLETIC AWARDS

Silvester Watch for Excellence in Athletics. A gold watch is offered annually to "the man who typified the best in college athletics." The watch is given in honor of a former President of the University, R. W. Silvester.

Maryland Ring. The Maryland Ring is offered by Charles L. Linhardt to the Maryland man who is adjudged the best athlete of the year.

Edward Powell Trophy. This trophy is offered by the class of 1913 to the player who has rendered the greatest service to lacrosse during the year.

Louis W. Berger Trophy. This trophy is awarded to the outstanding senior baseball player.

PUBLICATIONS AWARDS

Medals are offered in *Diamondback*, *Terrapin*, and *Old Line* work, for the students who have given most efficient and faithful service throughout the year.

RELIGIOUS INFLUENCES

The University recognizes its responsibility for the welfare of the students, not solely in their intellectual growth, but as human personalities whose development along all lines, including the moral and religious, is included in the educational process. Pastors representing the major denominational bodies are officially appointed by the Churches for work with the students of their respective faiths. Each of the Student Pastors also serves a local church of his denomination, which the students are urged to attend.

Committee on Religious Affairs and Social Service. A faculty committee on Religious Affairs and Social Service has as its principal function the stimulation of religious thought and activity on the campus. It brings noted speakers on religious subjects to the campus from time to time. The committee coöperates with the student pastors in visiting the students, and

assists the student denominational clubs in every way that it can. Opportunities are provided for students to consult with pastors representing the denominations of their choice.

While there is no attempt to interfere with anyone's religious beliefs, the importance of religion is recognized officially and religious activities are encouraged.

Denominational Clubs. Several religious clubs, each representing a denominational group, have been organized among the students for their mutual benefit and to undertake certain types of service. This year the list includes the Baptist Student Union, the Episcopal Club, the Lutheran Club, the Newman Club, the Hillel Foundation, the Methodist Club, and the Presbyterian Club. These clubs meet monthly or semi-monthly for worship and discussion, and occasionally for social purposes. A pastor or a member of the faculty serves as adviser. Evensong is held every Sunday evening under the auspices of the various denominational clubs. A local Y. W. C. A. also provides a variety of activities and services on a non-denominational basis.

EXTRA-CURRICULAR STUDENT ACTIVITIES

The following description of student activities covers those of the undergraduate divisions of College Park. The description of those in the Baltimore divisions is included in the appropriate chapters in Section III.

STUDENT GOVERNMENT

Regulation of Student Activities. The association of students in organized bodies for the purpose of carrying on voluntary student activities in orderly and productive ways, is recognized and encouraged. All organized student activities are under the supervision of the Student Life and Registration Committee, subject to the approval of the President. Such organizations are formed only with the consent of the Student Life and Registration Committee and the approval of the President. Without such consent and approval no student organization which in any way represents the University before the public, or which purports to be a University organization or an organization of University students, may use the name of the University in connection with its own name, or in connection with its members as students.

Student Government. The Student Government Association consists of the Executive Council, the Women's League, and the Men's League, and operates under its own constitution. Its officers are a President, a Vice-President, a Secretary-Treasurer, President of Women's League, and President of Men's League.

The Women's League, in cooperation with the Office of the Dean of Women, handles all matters pertaining to women students.

The Men's League, in cooperation with the Office of the Dean of Men, handles all matters pertaining to men students.

The Executive Council performs the executive duties incident to managing student affairs, and works in cooperation with the Student Life and Registration Committee.

The Student Life and Registration Committee, a faculty committee appointed by the President, keeps in close touch with all activities and conditions, excepting classroom work, that affect the student, and, acting in an advisory capacity, endeavors to improve any unsatisfactory conditions that may exist.

A pamphlet entitled *Academic Regulations*, issued annually and distributed to the students in the fall, contains full information concerning student matters as well as a statement of the rules of the University.

Eligibility to Represent the University. Only students in good standing are eligible to represent the University in extra-curricular contests. In addition, various student organizations have established certain other requirements. To compete in varsity athletics a student must pass at least twenty-four hours of work during a preceding year.

Discipline. In the government of the University, the President and faculty rely chiefly upon the sense of responsibility of the students. The student who pursues his studies diligently, attends classes regularly, lives honorably, and maintains good behavior meets this responsibility. In the interest of the general welfare of the University, those who fail to maintain these standards are asked to withdraw. Students are under the direct supervision of the University only when on the campus, but they are responsible to the University for their conduct wherever they may be.

FRATERNITIES, SORORITIES, SOCIETIES AND CLUBS

General Statement

Fraternities and sororities, as well as all other clubs and organizations recognized by the University, are expected to conduct their social and financial activities in accordance with the rules of good conduct and upon sound business principles. Where such rules and principles are observed, individual members will profit by the experience of the whole group, and thereby become better fitted for their life's work after graduation. Rules governing the different activities will be found in the list of Academic Regulations.

Honorary Fraternities. Honorary fraternities and societies in the University at College Park are organized to uphold scholastic and cultural standards. These are Phi Kappa Phi, a national honorary fraternity open to honor students, both men and women, in all branches of learning; Sigma Xi, an honorary scientific fraternity; Omicron Delta Kappa, men's national honor society, recognizing conspicuous attainment in non-curricular activities and general leadership; Mortar Board, the national senior honor society for women recognizing service, leadership, and scholarship; Alpha Lambda

Delta, a national freshmen women's scholastic society; Phi Eta Sigma, national freshman honor society for men. A group of honorary fraternities encourage development in specialized endeavor. These are Alpha Zeta, a national honorary agriculture fraternity recognizing scholarship and student leadership; Tau Beta Pi, a national honorary engineering fraternity; Alpha Chi Sigma, a national honorary chemical fraternity; Scabbard and Blade, a national military society; Pershing Rifles, a national military society for basic course R. O. T. C. students; Pi Delta Epsilon, a national journalistic fraternity; Omicron Nu, a national home economics society; Alpha Psi Omega, a national dramatic society; Beta Alpha Psi, a national accounting honorary fraternity; Pi Sigma Alpha, an honorary political science fraternity; and Beta Gamma Sigma, a national honorary commerce fraternity.

Fraternities and Sororities. There are fourteen national fraternities, one local fraternity, nine national sororities, and one local sorority at College Park. These in the order of their establishment at the University are Kappa Alpha, Sigma Nu, Phi Sigma Kappa, Delta Sigma Phi, Alpha Gamma Rho, Theta Chi, Phi Alpha, Tau Epsilon Phi, Alpha Tau Omega, Phi Delta Theta, Lambda Chi Alpha, Alpha Lambda Tau, Sigma Alpha Mu, and Alpha Epsilon Pi, national fraternities; Iota Sigma, a local fraternity; and Alpha Omicron Pi, Kappa Delta, Kappa Kappa Gamma, Delta Delta Delta, Alpha Xi Delta, Phi Sigma Sigma, Alpha Delta Pi, Sigma Kappa and Gamma Phi Beta, national sororities; and Alpha Sigma, a local sorority.

Clubs and Societies. Many clubs and societies, with literary, scientific, social and other special objectives, are maintained in the University. Some of these are purely student organizations; others are conducted jointly by students and members of the faculty. The list is as follows: Agricultural Council, Authorship Club, Bacteriology Society, Engineering Council, Horticulture Club, Block and Bridle Club, Calvert Debate Club, Women's Athletic Association, Footlight Club, Rossbourg Club, American Society of Mechanical Engineers, American Society of Civil Engineers, American Institute of Electrical Engineers, Chess Club, Swimming Club, International Relations Club, Clef and Key, Radio Club, Camera Club, Terrapin Trail Club, Student Grange, Farm Economics Club, Future Farmers of America, Riding Club, Collegiate Chamber of Commerce, Der Deutsche Verein, Spanish Club, Le Cercle Francaise, Chemical Engineering Club, Freshman Chemical Society, American Chemical Society, and Daydodgers Club.

STUDENT PUBLICATIONS

Four student publications are conducted under the supervision of the Faculty Committee on Student Publications.

The *Diamondback*, a semi-weekly, six-to-eight-page newspaper, is published by the students. This publication summarizes the University news,

and provides a medium of expression for the discussion of matters of interest to the students and the faculty.

The *Terrapin*, the student annual, is published by the Junior Class. It is a reflection of student activities, serving to commemorate the principal events of the college year.

The *Old Line*, a monthly magazine, is issued by the students containing short stories, cartoons, humorous material, poetry, and features of general interest.

The "M" Book, a handbook issued by the Student Government Association for the benefit of incoming students, is designed to acquaint them with general University life.

UNIVERSITY POST OFFICE

The University operates an office for the reception, dispatch and delivery of United States mail, including Parcel Post packages, and for inter-office communications. This office is located in the basement of the Administration Building. It is not a part of the United States Postal System and no facilities are available for sending or receiving postal money orders. Postage stamps, however, may be purchased. United States mail is received and dispatched several times daily.

Each student in the University is assigned a post office box at the time of registration, for which a small fee is charged. Also, boxes are provided for the various University offices.

One of the major reasons for the operation of the Post Office is to provide a convenient method by which Deans, teachers and University officials may communicate with students, and students are expected to call for their mail daily, if possible, in order that such communications may come to their attention promptly.

UNIVERSITY BOOKSTORE

For the convenience of students, the University maintains a Students' Supply Store, located in the basement of the Administration Building, where students may obtain at reasonable prices text books, stationery, classroom materials and equipment, confectionery, etc.

This store is operated on a basis of furnishing students needed books and supplies at as low a cost as practicable, and profits, if any, are turned into the general University treasury to be used for promoting general student welfare.

Students are advised not to purchase any text books until they have been informed by their instructors of the exact texts to be used in the various courses, as texts vary from year to year.

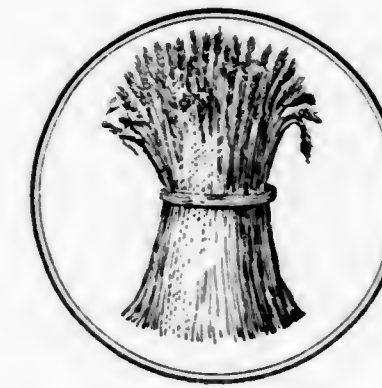
The bookstore is operated on a cash basis and credit is not extended to students.

ALUMNI

The Alumni Council, which is composed of representatives of each school and college in the University, coordinates all general Alumni interests. Alumni activities are further unified in two ways. There are organized alumni associations in the Schools of Medicine, Law, Pharmacy, Dentistry, and Nursing located in Baltimore. The alumni of the Colleges of Agriculture, Arts and Sciences, Commerce, Education, Engineering, and Home Economics, located at College Park, constitute a general Association, each group having its own Board of Representatives. Each school and college Alumni organization exerts an active interest in the welfare of its respective graduates.

An Alumni Office, with a full time Alumni Secretary in charge, is maintained at College Park, in the Administration Building, to direct the work of the association and to form a point of contact between the University and its graduates.

COLLEGE OF AGRICULTURE



*"When tillage begins, other
arts follow. The farmers, there-
fore, are the founders of civili-
zation."*

—Daniel Webster.

SECTION II

Resident Instruction

COLLEGE PARK

COLLEGE OF AGRICULTURE

T. B. SYMONS, *Dean.*

H. F. COTTERMAN, *Assistant Dean.*

JANE K. FARRELL, *Secretary to the Assistant Dean.*

The College of Agriculture offers both general and specialized training for students who wish to prepare for professional work in the broad field of agricultural endeavor. Student programs are arranged with a view to correlating technical work with related sciences and cultural subjects. Education in fundamentals receives special attention. Accordingly, young men and women are given a basic general education while they are being instructed in the various branches of agriculture. In addition to offering this opportunity for thorough grounding in the related basic natural and social sciences, it is an objective of the College to provide trained personnel for agricultural and allied industries. This personnel is recruited from rural and urban areas. Farm-reared students enter either general or specialized curricula; city-reared students tend to follow the specialized programs.

General

The College provides curricula for those who wish to engage in general farming, live stock production, dairying, poultry husbandry, fruit or vegetable growing, floriculture or ornamental horticulture, field crop production, or in the highly specialized scientific activities connected with these industries. It prepares men to serve as farm managers; for positions with commercial concerns related to agriculture, for responsible positions as teachers in agricultural colleges and in departments of vocational agriculture in high schools or as investigators in experiment stations, for extension work, for regulatory activities, and for service in the United States Department of Agriculture. Its curricula in Animal Science, Botany (including Plant Physiology and Plant Pathology), Dairy Science, Entomology, Horticultural Science, Poultry Science, and Soil Technology offer rich opportunities to students with a scientific bent of mind, and lead to positions with many ramifications in teaching, research, extension, and regulatory work.

Through research the frontiers of knowledge relating to agriculture and the fundamental sciences underlying it are constantly being extended and solutions for important problems are being found. Research projects in many fields are in progress. Students taking courses in agriculture from instructors who devote part time to research, or are closely associated with it, are kept in close touch with the latest discoveries and developments in the investigations under way. The findings of these research scientists provide valuable information for use in classrooms, and make instruction virile and authentic. The results of the most recent scientific investigations are constantly before the student.

Close contact of workers in the College with the problems of farmers and their families in all parts of the State, through the county agents, home demonstration agents, and specialists brings additional life to resident instruction in the College of Agriculture. These contacts operate in two ways: problems confronting rural people are brought to the attention of research workers and the instructional staff, and results of research are taken to farmers and their families in their home communities through practical demonstrations. Hence the problems of the people of the State contribute to the strength of the College of Agriculture, and the College helps them in the improvement of agriculture and rural life.

Through their regulatory functions, certain trained workers in the College of Agriculture are continually dealing with the actual problems associated with the improvement and maintenance of the standards of farm products and animals. Regulatory and control work extends over a wide range of activities and is concerned with reducing the losses due to insect pests and diseases; preventing and controlling serious outbreaks of diseases and pests of animals and plants; analyzing fertilizers, feed, and limes for guaranteed quality; and analyzing and testing germination quality of seeds to insure better seeds for farm planting.

These fields contribute largely to agricultural education, as standardization and education go hand in hand in the development of an industry. Direct contact on the part of professors in their respective departments with the problems and methods involved makes for effective instruction.

Coordination of Agricultural Work

The strength of the College of Agriculture of the University of Maryland lies in the close coordination of the instructional, research, extension, and regulatory functions within the individual departments, between the several departments, and in the institution as a whole. Instructors in the several departments are closely associated with the research, extension and regulatory work being carried on in their respective fields, and, in many cases, devote a portion of their time to one or more of these types of activities. Close coordination of these four types of work enables the University to provide a stronger faculty in the College of Agriculture, and affords a higher degree of specialization than would otherwise be possible. It insures instructors an opportunity to keep informed on the latest results

of research, and to be constantly in touch with current trends and problems which are revealed in extension and regulatory activities. Heads of departments hold staff conferences to this end, so that the student at all times is as close to the developments in the frontiers of the several fields of knowledge as it is possible for organization to put him.

In order that the work of the College shall be responsive to agricultural interests and shall adequately meet the needs of the several agricultural industries in the State, and that the courses of instruction shall at all times be made most helpful for students who pursue them, Advisory Councils have been constituted in the major industries of agriculture. These Councils are composed of leaders in the respective lines of agriculture in Maryland, and the instructional staff of the College of Agriculture has the benefit of their counsel and advice. By this means the College, the industries, and the students are kept abreast of developments.

Facilities and Equipment

In addition to buildings, laboratories, libraries, and equipment for effective instruction in the related basic sciences and in the cultural subjects, the University of Maryland is provided with excellent facilities for research and instruction in agriculture. University farms, totaling more than 1200 acres, are operated for instructional and investigational purposes. One of the most complete and modern plants for dairy and animal husbandry work in the country, together with herds of the principal breeds of dairy and beef cattle, and other livestock, provides facilities and materials for instruction and research in these industries. Excellent laboratory and field facilities are available in the Agronomy Department for breeding and selection in farm crops, and for soils research. The Poultry Department has a building for laboratories and classrooms, a plant comprising thirty-four acres, and flocks of all the important breeds of poultry. The Horticulture Department is housed in a separate building, and has ample orchards and gardens for its various lines of work.

Departments

The College of Agriculture includes the following departments: Agricultural Chemistry; Agricultural Education and Rural Life; Agricultural Engineering; Agronomy (including Crops and Soils); Animal Husbandry; Botany (including Morphology, Plant Physiology and Plant Pathology); Dairy Husbandry (including Dairy Manufacturing); Entomology (including Bee Culture); Farm Management and Agricultural Economics; Horticulture (including Pomology, Olericulture, Floriculture, and Ornamental Horticulture); Poultry Husbandry; Veterinary Science.

Admission

The requirements for admission are discussed under Admission, in Section I.

Junior Standing

To attain junior standing in the College of Agriculture, a student must have an average grade of C in not less than 62 semester hours.

Requirements for Graduation

A minimum of one hundred and twenty-eight semester hours is required for graduation. The detailed requirements for each department are included in the discussion of Curricula in Agriculture.

Farm and Laboratory Practice

The head of each department will help to make available opportunities for practical or technical experience along his major line of study for each student whose major is in that department and who is in need of such experience. For inexperienced students in many departments this need may be met by one or more summers spent on a farm.

Student Organizations

Students find opportunity for varied expression and growth in the several voluntary organizations sponsored by the College. These organizations are as follows: Student Grange, Livestock Club, Future Farmers of America, Alpha Zeta, Agricultural Economics Club, and the Agricultural Student Council.

Membership in these organizations is voluntary, and no college credits are given; yet much of the training obtained is fully as valuable as that acquired from regularly prescribed courses.

The Student Grange represents the Great National Farmers' fraternity of the Order of Patrons of Husbandry, and emphasizes training for rural leadership. It sponsors much deputation work in local granges throughout the State. The Livestock Club conducts the Students' Fitting and Showing Contest held on the campus in the Spring. The Future Farmers of America foster interest in vocational education, and the Collegiate Chapter serves as host Chapter in connection with high school judging contests held at the University. The Agricultural Economics group conducts special studies in the field of Agricultural Economics. All these organizations have regular meetings, arrange special programs, and contribute to the extra-curricular life of students.

Alpha Zeta—National Agricultural Honor Fraternity

Membership in Alpha Zeta fraternity is chosen from students in the College of Agriculture who have displayed agricultural motive and executive ability. This organization fosters scholarship, and awards a gold medal to the member of the freshman class in agriculture who makes the highest record during the year.

Agricultural Student Council

The Agricultural Student Council is made up of representatives from the various student organizations in the College of Agriculture. Its purpose is to coordinate activities of these students and to promote work which is beneficial to the College.

CURRICULA IN AGRICULTURE

Curricula within the College of Agriculture divide into three general classes: Technical, Scientific, and Special.

(1) Technical curricula are designed to prepare students for farming as owners, tenants, managers, or specialists; for positions as county agricultural agents, or teachers of agriculture in high schools; as executives, salesmen, or other employees in commercial businesses with close agricultural contact and point of view.

(2) Scientific curricula are designed to prepare students for positions as technicians, teachers, or investigators. These positions are usually in the various scientific and educational departments, or bureaus of the Federal, State, or Municipal governments; in the various schools or experiment stations; or in the laboratories of private corporations.

(3) Courses of study may be arranged for any who desire to return to the farm after one or more years of training in practical agricultural subjects.

Student Advisers

Each student in the College of Agriculture is assigned to a faculty adviser, either departmental or general. Departmental advisers consist of heads of departments or persons selected by them to advise students with curricula in their respective departments. General advisers are selected for students who have no definite choice of curriculum in mind, or who wish to pursue the general curriculum in agriculture.

Cases of students with poor records are referred to the Admission, Guidance, and Adjustment Committee, for review and advice.

Electives

The electives in the suggested curricula which follow afford opportunity for those who so desire to supplement major and minor fields of study or to add to their general training.

With the advice and consent of those in charge of his registration, a student may make such modifications in his curriculum as are deemed advisable to meet the requirements of his particular need.

Students wishing to take Advanced R. O. T. C. may, upon consultation with the Department Head and with the consent of the Dean, substitute this subject either as an elective or for certain requirements in junior and senior years.

Freshman Year

The program of the freshman year in the College of Agriculture is the same for all curricula of the College. Its purpose is to afford the student an opportunity to lay a broad foundation in subjects basic to agriculture and the related sciences, to articulate beginning work in college with that pursued in high or preparatory schools, to provide opportunity for wise choice of programs in succeeding years, and to make it possible for a student before the end of the year to change from one curriculum to another, or from the College of Agriculture to the curriculum in some other college of the University with little or no loss of credit.

Students entering the freshman year with a definite choice of curriculum in mind are sent to departmental advisers for counsel as to the wisest selection of freshman electives from the standpoint of their special interests and their probable future programs. Students entering the freshman year with no definite curriculum in mind, are assigned to general advisers, who assist with the choice of freshman electives and during the course of the year acquaint the students with the opportunities in the upper curricula in the College of Agriculture and in the other divisions of the University. If by the close of the freshman year a student makes no definite choice of a specialized curriculum, he continues under the guidance of his general adviser and at the beginning of the sophomore year enters Agriculture (General Curriculum).

Agriculture Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Chem. 1fs—General Chemistry.....	4	4
Eng. 1fs—Survey and Composition.....	3	3
Bot. 1—General Botany.....	4	—
Zool. 1—General Zoology.....	—	4
Speech 1fs—Public Speaking.....	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	$\frac{1}{2}$ — $\frac{1}{2}$	1
Phys. Ed. 4fs—Physical Activities (Women).....	$\frac{1}{2}$ — $\frac{1}{2}$	
Freshman Lectures	—	—
Elect one of the following:		
Modern Language—French or German.....	3	3
*Math. 8, 9—Elements of College Mathematics.....	3	3
Phys. 3fs—Introductory Physics.....	3	3
A. E. 1—Agricultural Industry and Resources.....	—	3
A. E. 2—Farm Organization.....	3	—
	—	—
	16	16

*Students who expect to pursue the curriculum in Agricultural Chemistry must be prepared to elect Math. 21 and 22.

AGRICULTURE—GENERAL

This curriculum is designed for persons wishing to return to the farm, those expecting to enter business allied to farming, others seeking a general rather than a specialized knowledge of the field of agriculture, and those preparing to be county and other agricultural agents.

By proper use of the electives allowed in this course a student may choose a field of concentration in agriculture and at the same time elect courses to enhance his liberal culture.

General Agriculture Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
Geol. 1—Geology	3	—
Soils 1—Soils and Fertilizers.....	—	3
Agron. 1—Cereal Crop Production.....	3	—
Agron. 2—Forage Crop Production.....	—	3
A. H. 2—Fundamentals of Animal Husbandry.....	3	—
D. H. 1—Fundamentals of Dairying.....	—	3
Physical or Biological Science Sequence.....	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	16	16
<i>Junior Year</i>		
Zool. 104—Genetics	3	—
Econ. 37—Fundamentals of Economics.....	—	3
Hort. 1, 2—General Horticulture.....	3	3
P. H. 1—Poultry Production	3	—
P. H. 2—Poultry Management	—	3
Speech 4fs—Advanced Public Speaking.....	2	2
Electives	6	6
	—	—
	17	17
<i>Senior Year</i>		
A. E. 108—Farm Management.....	3	—
A. E. 107—Analysis of Farm Business.....	—	3
Agr. Engr. 101—Farm Machinery.....	3	—
R. Ed. 110—Rural Life and Education.....	—	3
Electives	9	9
	—	—
	15	15

AGRICULTURAL CHEMISTRY

In the field of chemistry there is an opportunity for one properly trained in the biological sciences and appreciative of the chemical aspects of agriculture. The following curriculum is intended primarily to insure adequate instruction in the fundamentals of both the physical and biological sciences. It may be adjusted through the selection of electives to fit the student for work in agricultural experiment stations, soil bureaus, geological surveys, food laboratories, industries engaged in the process of handling food products and the fertilizer industries.

The outline calls for five years of study. The completion of four years of this outline leads to the degree of Bachelor of Science. By the proper use of electives in the fourth year and the continuation of this course of study for the fifth year and the presentation of a satisfactory thesis, the student may qualify for the Master's degree.

Agricultural Chemistry Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Math. 23fs—Calculus	4	4
A. E. 1—Agricultural Industry and Resources.....	3	—
A. E. 2—Farm Organization.....	—	3
Chem. 2fs—Qualitative Analysis.....	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
Electives—Biology	4	4
	—	—
	19	19
<i>Junior Year</i>		
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory.....	2	2
Chem. 6fs—Quantitative Analysis.....	4	4
Modern Language	3	3
Geol. 1—Geology	3	—
Soils 1—Soils and Fertilizers.....	—	3
Electives—Biology	3	3
	—	—
	17	17
<i>Senior Year</i>		
Econ. 31, 32—Principles of Economics.....	3	3
Modern Language	3	3
Electives—Biology	3	3
Phys. 1fs—General Physics.....	4	4
Electives	3	3
	—	—
	16	16

<i>Fifth Year</i>		<i>Semester</i>	
		<i>I</i>	<i>II</i>
Chem. 116fs—Advanced Organic Chemistry.....	2	2	2
Chem. 117fs—Organic Laboratory	2	2	2
Chem. 118fs—Advanced Organic Laboratory.....	1	1	1
Chem. 102Afs—Physical Chemistry	3	3	3
Chem. 102Bfs—Physical Chemistry Laboratory.....	2	2	2
Electives—Chemistry	2	2	2
Electives—Biology	3	3	3
	—	—	—
	15	15	15

AGRICULTURAL EDUCATION AND RURAL LIFE

The primary objective of the curricula is the teaching of secondary vocational agriculture, the work of county agents, and allied lines of the rural education service. Graduates from these curricula are in demand in rural business, particularly of the cooperative type. A number have entered the Federal service. Others are engaged in teaching and research in agricultural colleges. Quite a few have returned to the farm as owner managers.

Curriculum A is designed for persons who have had no vocational agriculture in high school or less than two years of such instruction. Curriculum B is designed for persons who have had two or more years of thoroughgoing instruction in secondary agriculture of the type offered in Maryland high schools. Curriculum B relieves the student of the necessity of pursuing beginning agriculture courses in the first two years of his college course, permits him to carry general courses in lieu of those displaced by his vocational program in high school, and offers him an opportunity to lay a broad foundation for the advanced work in agriculture of the last two college years.

In addition to the regular entrance requirements of the University, involving graduation from a standard four-year high school, students electing the agricultural education curricula must present evidence of having acquired adequate farm experience after reaching the age of fourteen years.

Students with high averages may upon petition be relieved of certain requirements in these curricula, when evidence is presented showing that either through experience or through previous training the prescription is non-essential; or they may be allowed to carry an additional load.

<i>Agricultural Education Curriculum A.</i>		<i>Semester</i>	
		<i>I</i>	<i>II</i>
<i>Sophomore Year</i>			
Bot. 20—Diseases of Plants.....	3	—	—
Ent. 1—Introductory Entomology.....	—	—	3
Agron. 1—Cereal Crop Production.....	3	—	—
Agron. 2—Forage Crop Production.....	—	—	3
Geol. 1—Geology	3	—	—
Soils 1—Soils and Fertilizers.....	—	—	3
A. H. 2—Fundamentals of Animal Husbandry.....	3	—	—
D. H. 1—Fundamentals of Dairying.....	—	—	3
Hort. 2—General Horticulture.....	3	—	—
Econ. 37—Fundamentals of Economics.....	—	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	—	—
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	2	2
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	—	—
	—	17	17
<i>Junior Year</i>			
Agr. Engr. 101—Farm Machinery.....	3	—	—
A. E. 100—Farm Economics.....	3	—	—
A. E. 102—Marketing of Farm Products.....	—	—	3
P. H. 1—Poultry Production.....	3	—	—
P. H. 2—Poultry Management.....	—	—	3
Hort. 1—General Horticulture.....	—	—	3
Ind. Ed. 167fs—General Shop.....	1	1	1
Speech 4fs—Advanced Public Speaking.....	2	2	2
A. H. 52—Feeds and Feeding.....	3	—	—
R. Ed. 107—Observation and the Analysis of Teaching for Agricultural Students	—	—	3
D. H. 101—Dairy Production.....	3	—	—
	—	18	15
<i>Senior Year</i>			
A. E. 108—Farm Management.....	—	—	3
Psych. 55—Educational Psychology.....	3	—	—
Agr. Engr. 102—Gas Engines, Tractors, and Automobiles.....	—	—	3
R. Ed. 51, 52—Farm Practicums and Demonstrations.....	1	1	1
R. Ed. 109—Teaching Secondary Vocational Agriculture.....	3	—	—
R. Ed. 110—Rural Life and Education.....	—	—	3
R. Ed. 112—Departmental Organization and Administration.....	—	—	1
Agr. Engr. 54—Farm Mechanics.....	1	—	—
R. Ed. 114—Teaching Farm Mechanics in Secondary Schools	—	—	1
R. Ed. 90fs—Practice Teaching.....	2	2	2
Electives	5	—	—
	—	15	14

Agricultural Education Curriculum B.

	Semester	
	I	II
<i>Sophomore Year</i>		
Bot. 20—Diseases of Plants.....	3	—
Ent. 1—Introductory Entomology.....	—	3
Geol. 1—Geology	3	—
Soils 1—Soils and Fertilizers.....	—	3
Hort. 1, 2—General Horticulture.....	3	3
A. H. 2—Fundamentals of Animal Husbandry.....	3	—
Econ. 37—Fundamentals of Economics.....	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
*Electives	3	3
	17	17
<i>Junior Year</i>		
Agr. Engr. 101—Farm Machinery.....	3	—
Ind. Ed. 167—General Shop.....	1	1
Speech 4fs—Advanced Public Speaking.....	2	2
R. Ed. 107—Observation and the Analysis of Teaching for Agricultural Students	—	3
Electives	11	11
	17	17
<i>Senior Year</i>		
Psych. 55—Educational Psychology.....	3	—
A. E. 108—Farm Management.....	—	3
R. Ed. 51, 52—Farm Practicums and Demonstrations.....	1	1
Agr. Engr. 102—Gas Engines, Tractors and Automobiles.....	—	3
R. Ed. 109—Teaching Secondary Vocational Agriculture.....	3	—
R. Ed. 110—Rural Life and Education.....	—	3
R. Ed. 112—Departmental Organization and Administration	—	1
Agr. Engr. 54—Farm Mechanics.....	1	—
R. Ed. 114—Teaching Farm Mechanics in Secondary Schools	—	1
R. Ed. 90fs—Practice Teaching.....	2	2
Electives	4	—
	14	14
Electives in Curriculum B:		
Animal Husbandry	3 hours	
Agromony	6 hours	
Dairy Husbandry	6 hours	
Farm Management	6 hours	
Poultry	3 hours	
Liberal or Subjects of Special Interest.....	7 hours	

*If Phys. 3fs (Introductory Physics) is not elected in the freshman year, it must be elected in the sophomore year.

AGRICULTURAL ENGINEERING

The department offers to students of agriculture training in those agricultural subjects which are based upon engineering principles. These subjects may be grouped under three heads: farm machinery and motors, farm buildings, and farm drainage.

The modern tendency in farming is to reduce production costs by the use of farm machinery units of efficient size and design. In many cases horses are being replaced by tractors. Trucks, automobiles, stationary engines and electrical equipment are found on almost all farms. It is highly advisable that the student of any branch of agriculture have a working knowledge of the design, adjustments, and repair of these machines.

More than one-fourth of the total value of Maryland farms is represented by the buildings. The study of the design of various buildings, from the standpoint of economy, sanitation, efficiency, and appearance, is, therefore, important.

Subjects included in the study of drainage are as follows: the principles of land drainage, the design and construction of tile drain systems and open ditches, and Maryland drainage laws.

FIVE-YEAR PROGRAM IN AGRICULTURE—ENGINEERING

For those students who wish to specialize in the application of engineering principles to the physical and biological problems of agriculture there is offered a combined program, extending over a five-year period, arranged jointly by the College of Agriculture and the College of Engineering, and leading to a degree from each of these Colleges.

This program prepares graduates to enter State, Federal or commercial fields of activity in such work as soil and water conservation, rural electrification, design and sale of farm machinery and structures, and in the development of new uses for farm products and the profitable utilization of farm wastes and by-products.

To be properly trained in these fields a student needs a broader knowledge of basic and applied engineering principles than could be provided in a four-year course in agriculture. He also needs a broader training in the fundamentals of agriculture than a standard four-year course in engineering could furnish.

Students electing the five-year combined program follow the same curriculum for the first year. At the end of the first year they decide whether their final objective is a degree in Civil, Electrical, Mechanical, or Chemical Engineering.

Upon completion of the normal four year course of study the degree of Bachelor of Science in Agriculture is granted. For the fifth year the student registers in the College of Engineering, and at the end of that year, upon satisfactory completion of the required course of study, receives a degree in Civil, Electrical, Mechanical or Chemical Engineering.

Agricultural Engineering Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
Math. 21, 22—College Algebra and Plane Trigonometry; Analytic Geometry.....	4	4
Chem. 1fs—General Chemistry.....	4	4
Dr. 1—Engineering Drawing.....	2	—
Dr. 2—Descriptive Geometry.....	—	2
Shop 1—Forge Practice.....	—	1
Engr. 1—Introduction to Engineering.....	1	—
Zool. 3—Introductory Zoology.....	3	—
Bot. 1—General Botany.....	—	4
Freshman Lectures.....	—	—
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	1
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	—
	19	20

The remainder of this curriculum is for the student whose objective, at the end of the fifth year, is a degree in Civil Engineering. Similar curricula will be arranged for options in Electrical, Mechanical and Chemical Engineering.

Sophomore Year—Civil Engineering Option

Speech 5—Oral Technical English.....	2	—
Math. 23fs—Calculus.....	4	4
Phys. 2fs—General Physics.....	5	5
Dr. 3—Advanced Engineering Drawing.....	2	—
Mech. 1—Statics and Dynamics.....	—	3
Surv. 2fs—Plane Surveying.....	2	3
Geol. 2—Engineering Geology.....	2	—
Econ. 37—Fundamentals of Economics.....	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	2
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	—
	19	20

	Semester	
	I	II
<i>Junior Year—Civil Engineering Option</i>		
Speech 6—Advanced Oral Technical English.....	—	2
Mech. 50—Strength of Materials.....	5	—
Mech. 52—Materials of Engineering.....	—	2
Surv. 101—Advanced Surveying.....	4	—
Agr. Engr. 101—Farm Machinery.....	3	—
Agr. Engr. 107—Farm Drainage.....	—	2
Agr. Engr. 54—Farm Mechanics.....	1	—
Soils 1—Soils and Fertilizers.....	—	3
Electives in Agriculture.....	4	8
	17	17

Fourth Year—Civil Engineering Option

C. E. 50—Hydraulics.....	—	4
M. E. 50—Principles of Mechanical Engineering.....	3	—
E. E. 50—Principles of Electrical Engineering.....	—	3
C. E. 52—Curves and Earthwork.....	3	—
C. E. 104—Theory of Structures.....	—	4
Agr. Engr. 105—Farm Buildings.....	2	—
Agr. Engr. 102—Gas Engines, Tractors and Automobiles.....	—	3
A. E. 100—Farm Economics.....	3	—
A. E. 108—Farm Management.....	3	—
Approved Electives.....	3	3
Technical Society.....	—	—
	17	17

Fifth Year—Civil Engineering Option

The curriculum for the fifth year is the senior year curriculum in civil engineering, without change, as shown under College of Engineering.

AGRONOMY

The curricula in this department are designed to prepare students for the following occupations or positions: specialized crop farming; general farming; technical workers in private and public concerns; scientists in soil and crop technology; and agricultural representatives with commercial and industrial organizations.

The curriculum in crop production aims to give the student the fundamental principles of crop production. Special effort is made to adapt the work to the young man who wishes to apply the scientific principles of field crop culture and improvement on the farm. At the same time enough freedom is given the student in the way of electives so that he may register for subjects which might go along with the growing of crops on his par-

ticular farm. A student graduating from the course in agronomy should be well fitted for general farming, for the production of improved seeds, for employment with commercial firms, for investigational work in the State or Federal Experiment Stations, or for county agent work.

The curriculum in plant breeding aims to prepare students for work in this field, with commercial seed companies, in the Federal Government, and in State Agricultural Experiment Stations. In this curriculum, foundations are also laid in fundamental sciences for the graduate work which many will want to pursue in further preparation for advancement in the work of plant breeding.

The curriculum in soils gives instruction in the physics, chemistry, and biology of the soil, the courses being designed to equip the future farmer with a complete knowledge of his soil and also to give adequate training to students who desire to specialize in soils. Those who are preparing to take up research or teaching are expected to take graduate work in addition to the regular undergraduate courses that are offered. The department possesses the necessary equipment and facilities for instruction in these subjects, and in addition affords opportunities for the student to come in contact with the research at the Agricultural Experiment Station, especially in the pot culture laboratories, and in the experimental fields at the station and in other parts of the State.

Graduate students will find unusual opportunities to fit themselves for research as technical workers or as representatives of commercial or industrial organizations, to conduct research in experiment stations, to teach in agricultural colleges, and to carry on work with the Bureau of Plant Industry and the Bureau of Chemistry and Soils, United States Department of Agriculture.

Agronomy Curriculum

Agronomy Curriculum		Semester	
Sophomore Year		I	II
Agron. 1—Cereal Crop Production.....		3	—
Agron. 2—Forage Crop Production.....		—	3
Geol. 1—Geology		3	—
Soils 1—Soils and Fertilizers.....		—	3-5
*Chem. 12Afs—Elements of Organic Chemistry.....		2	2
*Chem. 12Bfs—Elements of Organic Laboratory.....		1	1
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1		
Phys. Ed. 8fs—Physical Activities (Women).....	1—1		
Select from following:			
Phys. 1fs—General Physics.....		4	4
Any course under 50—Agriculture.....		2-4	2-4
†Math. 23fs—Calculus		4	4
		—	—
		13-15	13-17

Crop Production

	Semester	
	I	II
<i>Junior Year</i>		
Zool. 104—Genetics	3	—
Agron. 51—Technology of Crop Quality.....	1-3	—
Bact. 1—General Bacteriology.....	—	4
Eng. 4, 5—Expository Writing.....	2	2
Plt. Phys. 101—Plant Physiology.....	4	—
Econ. 37—Fundamentals of Economics.....	—	3
Electives	5	7
	—	—
	15-17	16

Senior Year

Agron. 103—Crop Breeding.....	2	—
A. E. 100—Farm Economics.....	3	—
Agron. 121—Methods of Crop and Soil Investigations.....	2	—
Agron. 54—Selected Crop Studies.....	1-2	1-2
Soils 53—Soil Geography.....	3	—
Agr. Engr. 101—Farm Machinery.....	3	—
Agr. Engr. 107—Farm Drainage.....	—	2
A. E. 108—Farm Management.....	3	—
Electives	—	11
	—	—
	17-18	14-15

Crop Breeding

<i>Junior Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
Econ. 37—Fundamentals of Economics.....	—	3
Bact. 1—General Bacteriology.....	—	4
Phys. 1fs—General Physics.....	4	4
Zool. 104—Genetics	3	—
Agron. 51—Technology of Crop Quality.....	2	—
Electives	5	3
	—	—
	16	16

*Under certain conditions a sequence in biology may be substituted for Organic Chemistry.

†Required of students majoring in Plant Breeding.

	Semester	
	I	II
<i>Senior Year</i>		
Stat. 14—Elements of Statistics.....	3	—
Stat. 112—Biological Statistics.....	—	3
Agron. 103—Crop Breeding.....	2	—
Agr. Engr. 107—Farm Drainage.....	—	2
Agr. Engr. 101—Farm Machinery.....	3	—
Agron. 121—Methods of Crop and Soil Investigations.....	2	—
Plt. Phys. 101—Plant Physiology.....	4	—
Soils 53—Soil Geography.....	3	—
Electives	—	11
	17	16
<i>Soils</i>		
<i>Junior Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
Econ. 37—Fundamentals of Economics.....	—	3
Bact. 1—General Bacteriology.....	4	—
Soils 102—Soil Management.....	—	3
Plt. Phys. 101—Plant Physiology.....	4	—
Electives	6	8
	16	16
<i>Senior Year</i>		
A. E. 108—Farm Management.....	3	—
Agron. 121—Methods of Crop and Soil Investigations.....	2	—
Soils 53—Soil Geography.....	3	—
Agr. Engr. 107—Farm Drainage.....	—	2
Soils 112—Soil Conservation.....	—	3
Electives	8	11
	16	16

ANIMAL HUSBANDRY

The curriculum in animal husbandry is designed to prepare students for three distinct professional fields: livestock farming and scientists in the livestock industries, technical workers and advisors in private and public concerns.

By proper use of the electives allowed in this curriculum, the student may equip himself to become an owner or operator of a general or specialized livestock farm; to become a county agricultural agent; to meet the requirements of positions with certain types of private and cooperative business concerns; or, with more technical and specialized training, to become qualified for instructional work in colleges, for investigational work in State and Federal experiment stations or in commercial research laboratories.

Students who desire to enter the field of teaching or highly specialized research should elect the more scientific courses offered by this and by other departments and should further qualify themselves by continuing graduate studies in some specific phase of animal science.

Modern beef cattle, horse, and sheep barns are located on the campus; a livestock farm within a short distance of the University and the possession of choice herds and flocks provide the department with the equipment and facilities so essential for instruction and for research in animal husbandry.

Through the courtesy of Maryland breeders, the Bureau of Animal Industry and Beltsville Research Center, additional facilities, including herds and flocks, are available for instructional purposes. The headquarters of the Bureau of Animal Industry in Washington are approximately eight miles from the University campus.

The curriculum for the sophomore, junior, and senior years is suggested as a guide for students wishing to major in the animal husbandry field.

Animal Husbandry Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Chem. 12Afs—Elements of Organic Chemistry.....	2	2
Chem. 12Bfs—Elements of Organic Laboratory.....	1	1
A. H. 2—Fundamentals of Animal Husbandry.....	3	—
D. H. 1—Fundamentals of Dairying.....	—	3
Bact. 1—General Bacteriology.....	4	—
Econ. 37—Fundamentals of Economics.....	—	3
Geol. 1—Geology	3	—
Soils 1—Soils and Fertilizers.....	—	3
Agron. 2—Forage Crop Production.....	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
Electives	1	—
	16	17

	Semester	
	I	II
<i>Junior Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
A. H. 52—Feeds and Feeding.....	3	—
A. H. 53—Principles of Breeding.....	—	3
A. H. 112—Livestock Markets and Marketing.....	2	—
A. H. 55—Livestock Management	—	2
A. H. 31—Livestock Judging	—	2
*A. H. 64—Sheep Production	2	—
*A. H. 67—Pork Production	—	2
Zool. 104—Genetics	3	—
Electives	4	5
	16	16
<i>Senior Year</i>		
*A. H. 60—Beef Cattle Production.....	2	—
*A. H. 69—Draft Horse Production.....	—	2
A. H. 114—Animal Nutrition	3	—
A. E. 108—Farm Management	—	3
A. E. 107—Analysis of the Farm Business.....	3	—
V. S. 101—Comparative Anatomy and Physiology.....	3	—
V. S. 102—Animal Hygiene	—	3
Electives	5	8
	16	16

BOTANY

The department offers three major fields of work: general botany and morphology; plant pathology, and plant physiology and ecology. The required courses for the freshman and sophomore years are the same for all students. In the junior and senior years, the student elects botanical courses to suit his particular interests in botanical science. Both the junior and senior years also allow considerable freedom in the election of non-botanical courses, in order to provide a fairly broad cultural education. Through cooperation with the College of Education, students who wish to meet the requirements for the state high school teacher's certificates may elect the necessary work in education.

The curriculum as outlined lays a good foundation for students who wish to pursue graduate work in botanical science in preparation for col-

*Only two production courses are required for graduation. The student may choose any two of these four courses to fulfill this requirement.

lege teaching and for research in state experiment stations, in the United States Department of Agriculture, and in private research institutions and laboratories.

The curriculum also affords students an opportunity for training for other vocations involving various botanical applications, such as extension work, and positions with seed companies, canning companies, companies making spray materials, and other commercial concerns.

Botany Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Bot. 20—Diseases of Plants.....	4	—
Bot. 2—General Botany.....	—	4
Bact. 1—General Bacteriology	4	—
Math. 8, 9—Elements of College Mathematics.....	3	3
*Modern Language	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
Electives	—	4
	16	16
<i>Junior Year</i>		
Plt. Phys. 101—Plant Physiology.....	4	—
Phys. 1fs—General Physics.....	4	4
Bot. 50—Plant Taxonomy	—	3
Bot. 51—Plant Microtechnique	—	2
Electives	8	7
	16	16
<i>Senior Year</i>		
Zool. 104—Genetics	3	—
Bot. 52—Seminar	1	1
Plt. Phys. 102—Plant Ecology.....	—	3
Botanical Electives (Maximum).....	6	6
Other Electives (Minimum).....	6	6
	16	16

*Twelve hours of modern language are required. If it is not begun until the sophomore year, the last six hours will be elected in the junior or senior year.

DAIRY HUSBANDRY

The department offers instruction in two major lines of work: dairy production and dairy manufacturing. The curricula are designed to prepare students for practical work in dairy farming and dairy manufacturing industries, for scientific work in the dairy industry, and for technical workers with milk cooperatives, dairy breed associations, and private and public concerns.

In the dairy production curriculum, students are given technical and practical training in the breeding, feeding, management, and selection of dairy cattle and in the handling and marketing of milk and milk products. With additional courses in the physical, biological and social sciences, students are qualified to become owners or operators of dairy farms, for breed promotion and sales work, for employment with private and cooperative business organizations, and for county agent work. By careful election of courses the student may lay a foundation for instructional work in colleges, and for investigational work in experiment stations and commercial research laboratories.

For those students interested in dairy manufacturing, the curriculum is designed to prepare students for practical and scientific work concerned with the processing and distribution of milk, manufacture and handling of butter, cheese, ice cream, and other milk products, and in dairy plant operation and management. Students who major in dairy manufacturing are qualified for the many technical and applied positions in the various branches of the dairy industry.

These curricula permit specialization in the respective fields, but allow considerable latitude in the election of courses in other departments. When desirable, changes may be made to meet the special needs of some students. For example, those students who desire to enter the field of teaching and research should elect more of the scientific courses offered in this, and other, departments. In most cases these students will be advised to pursue graduate work in some particular phase of dairy science.

The dairy industry of Maryland ranks first in economic importance among the agricultural industries of the State. Such an industry needs and depends upon intelligent, well trained men for work in dairying. The department is equipped with modern dairy barns, dairy herds, dairy manufacturing plant and salesroom, and laboratories and other facilities for instructional and research work in dairy husbandry.

Dairy Production Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Chem. 12Afs—Elements of Organic Chemistry	2	2
Chem. 12Bfs—Elements of Organic Laboratory	1	1
A. H. 2—Fundamentals of Animal Husbandry	3	—
D. H. 1—Fundamentals of Dairying	—	3
Bact. 1—General Bacteriology	3	—
Geol. 1—Geology	3	—
Soils 1—Soils and Fertilizers	—	5
Agron. 2—Forage Crop Production	—	3
M. I. 2fs—Basic R. O. T. C. (Men)	2—2	
Phys. Ed. 6fs—Community Hygiene (Women)	1—1	
Phys. Ed. 8fs—Physical Activities (Women)	1—1	
Electives	2	—
	16	16
<i>Junior Year</i>		
Eng. 4, 5—Expository Writing	2	2
Econ. 37—Fundamentals of Economics	—	3
Zool. 104—Genetics	3	—
A. H. 53—Principles of Breeding	—	3
A. H. 52—Feeds and Feeding	3	—
D. H. 50—Dairy Cattle Management	2	—
D. H. 30—Dairy Cattle Judging	—	2
V. S. 101—Comparative Anatomy and Physiology	3	—
V. S. 102—Animal Hygiene	—	3
*Electives	3	3
	16	16
<i>Senior Year</i>		
D. H. 101—Dairy Production	3	—
D. H. 105—Dairy Breeds and Breeding	—	2
D. H. 113—Market Milk	5	—
A. E. 108—Farm Management	3	—
A. H. 114—Animal Nutrition	3	—
D. H. 119, 120—Dairy Literature	1	1
*Electives	1	13
	16	16

*Electives from dairy manufacturing, animal husbandry, agronomy, and veterinary science are recommended.

Dairy Manufacturing Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Chem. 12Afs—Elements of Organic Chemistry	2	2
Chem. 12Bfs—Elements of Organic Laboratory	1	1
Chem. 4—Quantitative Analysis	—	4
Bact. 1—General Bacteriology	3	—
Bact. 5—Bacteriological Technique	2	—
D. H. 1—Fundamentals of Dairying	—	3
Econ. 37—Fundamentals of Economics	3	—
Phys. 3fs—Introductory Physics	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....2-2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1-1		
Phys. Ed. 8fs—Physical Activities (Women).....1-1		
Electives	—	1
	16	16
<i>Junior Year</i>		
Bact. 101—Milk Bacteriology	4	—
Bact. 102—Dairy Products Bacteriology	—	3
D. H. 40—Grading Dairy Products	—	1
D. H. 64—Dairy Mechanics	2	—
Eng. 4, 5—Expository Writing	2	2
D. H. 109—Cheese Making	3	—
D. H. 110—Butter Making	2	—
D. H. 111—Concentrated Milks	—	2
D. H. 112—Ice Cream Making	—	3
*Electives	3	5
	16	16
<i>Senior Year</i>		
D. H. 113—Market Milk	5	—
D. H. 114—Analysis of Dairy Products	—	4
D. H. 68—Dairy Accounting	1	—
D. H. 72—Dairy Plant Experience	2	—
D. H. 70—Dairy Plant Management	—	1
D. H. 119, 120—Dairy Literature	1	1
*Electives	7	10
	16	16

*Electives in dairy production, chemistry, and bacteriology are recommended.

Suggested Elective Courses:

	Semester	
	I	II
Mkt. 101—Principles of Marketing	3	—
Mkt. 106—Salesmanship	—	2
Mkt. 109—Principles of Advertising	3	—
Bus. 164—Business Law	—	3
Chem. 50A, B—General Physiological Chemistry	4	or 4
Stat. 14—Elements of Statistics	3	—
Bact. 111—Food Bacteriology	3	—
Bact. 112—Sanitary Bacteriology	—	3
Dr. 4fs—Mechanical Drawing	1	1
A. E. 100—Farm Economics	3	—
Bus. 71—Fundamentals of Business Administration	2	—

ENTOMOLOGY

This department trains entomologists for work in state and federal entomological bureaus, in preparation for commercial pest control operations and finally, but not least, for actual insect control on their own farms. In addition, entomology is taught as a cultural subject because of its wide field of application, its varied subject matter, and the general interest of the public in the small creatures about it.

The success of the farmer, particularly the fruit and vegetable grower, is in large measure dependent upon his knowledge of the methods of preventing or combating pests. Successful methods of control are emphasized in the economic courses.

The fact that the entomological work of the Experiment Station, the Extension Service, the College of Agriculture, and the State Entomologist is in one administrative unit enables the student to avail himself of the many advantages accruing therefrom. Advanced students may be assigned to work on Experiment Station projects already under way. The department takes every advantage of the facilities offered by the Bureau of Entomology of the U. S. Department of Agriculture, the Beltsville Research Center, the National Museum, Smithsonian Institution, various other local laboratories, the libraries in Washington, and the Washington Entomological Society. Thus students are given many opportunities of meeting authorities in the various fields of entomology, to observe projects under way, consult collections, and hear addresses on every phase of entomology. Following is the suggested curriculum in entomology:

Entomology Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Chem. 12Afs—Elements of Organic Chemistry.....	2	2
Chem. 12Bfs—Elements of Organic Laboratory.....	1	1
Bot. 20—Diseases of Plants.....	4	—
Bact. 1—General Bacteriology.....	—	4
Ent. 1—Introductory Entomology.....	3	—
Ent. 2—Insect Morphology.....	—	3
Modern Language	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
	—	—
	15	15
<i>Junior Year</i>		
Ent. 50—Insect Taxonomy.....	3	—
Ent. 51—Advanced Taxonomy.....	—	3
Ent. 101—Economic Entomology.....	4	—
Phys. 3fs—Introductory Physics.....	3	3
Modern Language	3	3
Electives	3—4	7—8
	—	—
	16—17	16—17
<i>Senior Year</i>		
*Ent. 103, 104—Insect Pests.....	3	3
Ent. 112fs—Seminar	1	1
†Ent. 110, 111—Special Problems.....	2	2
Electives	10—11	10—11
	—	—
	16—17	16—17

The curriculum in entomology is based upon the option of elementary mathematics in the freshman year and the selection of another elective may interfere severely with the taking of remaining required courses in subsequent years.

*During some years a part of this requirement will have to be taken during the junior year.

†Flexible credit hours make it possible for the student to satisfy all the requirements in this course during a single semester if his schedule permits.

FARM MANAGEMENT*

The curriculum in farm management is designed to prepare students for the following types of positions: on the farm as farm operators and farm managers; with farm organizations, such as the Farm Bureau and farmers' co-operatives; with private and corporate business concerns; and with State and Federal agencies, such as college teachers, extension and investigational workers.

The courses in this department are designed to provide fundamental training in the basic economic principles underlying farming. While the curriculum is developed primarily from the viewpoint of farm management, sufficient basic courses in general agricultural economics, marketing, finance, and land economics are included to give the student the foundation needed to meet the production and distribution problems confronting the individual farmer in a progressive rural community.

Farming is a business, as well as a way of life, and as such demands for its successful conduct the use of business methods; the keeping of farm business records, analyzing the farm business, and of organizing and operating the farm as a business enterprise. It requires not only knowledge of many factors involved in the production of crops and animals, but also administrative ability to coordinate them into the most efficient farm organization. Such knowledge enables the student to perceive the relationship of several factors of production and distribution as applicable to local conditions, and to develop an executive and administrative capacity.

Farm Management Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
Math. 8, 9—Elements of College Mathematics.....	3	3
Econ. 37—Fundamentals of Economics.....	—	3
Hort. 1—General Horticulture.....	3	—
Geol. 1—Geology	3	—
Agron. 1—Cereal Crop Production.....	3	—
Soils 1—Soils and Fertilizers.....	—	3
P. H. 2—Poultry Management.....	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
	—	—
	16	16

*Students electing the Farm Management curriculum must present evidence of having acquired at least one year of practical farm experience.

	Semester	
	I	II
<i>Junior Year</i>		
A. E. 100—Farm Economics.....	3	—
A. E. 102—Marketing of Farm Products.....	—	3
A. E. 107—Analysis of the Farm Business.....	3	—
A. H. 52—Feeds and Feeding.....	3	—
Fin. 43—Money and Banking.....	—	3
Agr. Engr. 101—Farm Machinery.....	3	—
A. H. 2—Fundamentals of Animal Husbandry.....	—	3
Electives	4	7
	16	16
<i>Senior Year</i>		
A. E. 103—Cooperation in Agriculture.....	3	—
A. E. 108—Farm Management.....	3	—
A. E. 104—Farm Finance.....	—	3
R. Ed. 110—Rural Life and Education.....	—	3
Stat. 15fs—Business Statistics.....	3	3
A. E. 111—Land Economics.....	3	—
A. E. 106—Prices of Farm Products.....	—	3
Electives	4	4
	16	16

HORTICULTURE

The department offers instruction in pomology (fruits), olericulture (vegetables), floriculture (flowers), and ornamental gardening. These courses prepare students to enter the field of commercial production and to meet the demand for men in the horticultural industries. Students are likewise prepared to enter the allied industries as horticultural workers with fertilizer companies, seed companies, equipment manufacturers, and others. Students who wish to enter specialized fields of research and teaching may take advanced work in the department.

The State of Maryland and other states offer many excellent opportunities in horticultural industries: large fruit enterprises, producing apples, peaches, strawberries, raspberries, and other fruits for domestic and foreign markets; extensive greenhouse establishments, growing flowers and vegetables; canning and preserving factories in vegetable and fruit areas; nurseries, propagating trees and plants of all kinds; and concentrated farming areas devoted to vegetable production for market and canning. These industries require men with a specialized knowledge of production and marketing phases of the horticultural crops which are produced.

Students in horticulture have considerable latitude in the selection of horticultural courses, but usually find it advisable to specialize by electing all of the courses offered in pomology, olericulture, or floriculture, accord-

ing to the suggested curricula. Students who wish to specialize in landscape architecture will be given an opportunity to secure certain basic courses in the curriculum for ornamental horticulture, but must plan to spend additional time at another institution where a complete landscape curriculum is offered.

The department is equipped with several greenhouses and a modern horticultural building, with laboratories and cold storage rooms, for horticultural teaching and research. Extensive acreage near the University is devoted to the growing of fruit trees and vegetable crops. An arboretum with many ornamental plants has been started on the University grounds for use in teaching of horticulture and other related subjects.

The suggested curricula will be adjusted to the special needs of students whose interests lie in the general scientific field or those who are preparing for work in technical lines. The object is to fit students most effectively to fill positions of several types.

Pomology and Olericulture Curriculum	Semester	
	I	II
<i>Sophomore Year</i>		
Bot. 20—Diseases of Plants.....	4	—
Geol. 1—Geology	3	—
Econ. 37—Fundamentals of Economics.....	3	—
Bot. 2—General Botany.....	—	4
Ent. 1—Introductory Entomology.....	—	3
Soils 1—Soils and Fertilizers.....	—	3-5
Hort. 1, 2—General Horticulture.....	3	3
Eng. 4, 5—Expository Writing.....	2	2
M. I. 2fs—Basic R. O. T. C. (Men).....	2-2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1-1	
Phys. Ed. 8fs—Physical Activities (Women).....	1-1	
	17	17-19
<i>Junior Year</i>		
Hort. 3, 4—Fruit Production.....	2-3	2
Plt. Phys. 101—Plant Physiology.....	4	—
Hort. 8—Small Fruits.....	—	2-3
Hort. 5—Vegetable Production.....	—	3
Plt. Path. 101—Diseases of Special Crops.....	3	—
Hort. 106—World Fruits and Nuts.....	—	2
Electives	6-7	6-8
	15-17	15-18

	Semester	
	I	II
<i>Senior Year</i>		
Zool. 104—Genetics	3	—
Hort. 101, 102—Technology of Horticultural Plants (Fruits)	2	2
Hort. 103, 104—Technology of Horticultural Plants (Vegetables)	2	2
Ent. 103, 104—Insect Pests	3	3
Hort. 111fs—Seminar	1	1
Hort. 109—Systematic Pomology	3	—
or		
Hort. 110—Systematic Olericulture	3	—
or		
A. E. 108—Farm Management	3	—
Electives	1	7
	15	15
Floriculture and Ornamental Horticulture Curriculum		
<i>Sophomore Year</i>		
Geol. 1—Geology	3	—
Eng. 4, 5—Expository Writing	2	2
Hort. 1—General Horticultural	3	—
M. I. 2fs—Basic R. O. T. C. (Men)	2—2	
Phys. Ed. 6fs—Community Hygiene (Women)	1—1	
Phys. Ed. 8fs—Physical Activities (Women)	1—1	
	2	2
<i>Elect From the Following Courses:</i>		
Bot. 2—General Botany	—	4
Hort. 11—Landscape Gardening	2	—
Surv. 2fs—Plane Surveying	2	3
Dr. 1—Engineering Drawing	2	—
Bot. 20—Diseases of Plants	4	—
Econ. 37—Fundamentals of Economics	—	3
Ent. 1—Introductory Entomology	—	3
	16	14-17
<i>Junior Year</i>		
Soils 1—Soils and Fertilizers	—	5
Hort. 107fs—Plant Materials	3	2
Plt. Phys. 101—Plant Physiology	4	—
<i>Elect From the Following Courses:</i>		
Zool. 104—Genetics	3	—
Hort. 5—Vegetable Production	—	3
Hort. 14—Civic Art	—	2
Hort. 12, 13—Landscape Design	3	3
Hort. 10fs—Commercial Floriculture	3	4
	16	14-17

	Semester	
	I	II
<i>Senior Year</i>		
Hort. 111fs—Seminar	1	1
Hort. 112fs—Special Problems	1-2	1-2
Hort. 105—Technology of Horticultural Plants (Ornamentals)	2	—
Electives	11-12	13-14
	16	16

Elect from courses listed for the Sophomore and Junior Years and from other courses offered in Entomology, Agronomy, Agricultural Engineering, Botany, Economics, Genetics, Statistics, Plant Physiology, Bacteriology, Plant Pathology, Speech, English, Business Administration, Modern Languages, Fine Arts, or Education.*

POULTRY HUSBANDRY

The curriculum in poultry husbandry is designed to give the student a thorough knowledge of subject matter necessary for poultry raising; the marketing, distribution, and processing of poultry products; poultry improvement work; and as a basis for graduate training for teaching and research in poultry husbandry.

The poultry industry of Maryland ranks second to dairying in economic importance among the agricultural industries of the State. Nearby markets provide a profitable outlet for poultry products of high quality in larger volume than now produced in the State. The necessary quality can be attained by intelligent, trained poultry husbandmen.

The suggested curriculum will be modified to meet the special needs of individual students. For example, most students will be expected to take the courses in Agricultural Industry and Resources and Farm Organization offered in the general curriculum for the freshman year. Superior students, definitely anticipating preparation for a professional career in poultry husbandry, will be expected to take language instead. However, all students majoring in poultry husbandry will be required to complete 24 semester hours in poultry husbandry.

*Such electives are advised for all students in Horticulture.

THE UNIVERSITY OF MARYLAND

Poultry Husbandry Curriculum

Sophomore Year

	Semester	
	I	II
P. H. 1—Poultry Production	3	—
P. H. 2—Poultry Management	—	3
Speech 4fs—Advanced Public Speaking	2	2
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
Elect one of the following:		
Chem. 12Afs and 12Bfs—Elements of Organic Chemistry.....	3	3
Econ. 37—Fundamentals of Economics; A. E. 102—Marketing of Farm Products	3	3
Other Electives: These will be chosen from the physical sciences, modern languages, and elementary courses in agriculture	6	6
	16	16

Junior Year

P. H. 50—Poultry Biology	2	—
P. H. 51—Poultry Genetics	—	3
P. H. 52—Poultry Nutrition	2	—
P. H. 56—Poultry Physiology	—	2
Bact. 1—General Bacteriology.....	4	—
A. E. 104—Farm Finance.....	—	3
Zool. 104—Genetics	3	—
Choose from the following:		
Chem. 50 A, B—General Physiological Chemistry.....	—	4
or		
Bact. 2—Pathogenic Bacteriology.....	—	3
Econ. 37—Fundamentals of Economics.....	3	3
A. E. 102—Marketing of Farm Products }		
Electives	2	1-5
	16	16

COLLEGE OF AGRICULTURE

Senior Year

	Semester	
	I	II
P. H. 104—Poultry Marketing Problems.....	2	—
P. H. 105—Egg Marketing Problems.....	—	2
V. S. 57, 107—Poultry Hygiene.....	—	3
V. S. 108—Avian Anatomy	3	—
P. H. 107—Poultry Industrial and Economic Problems.....	2	—
P. H. 58—Commercial Poultry Management.....	—	2
Stat. 14—Elements of Statistics.....	3	—
Stat. 112—Biological Statistics	—	3
Bus. 102—Organization and Management.....	3	—
F. Tech. 108—Preservation of Poultry Products.....	—	2
Electives	3	4
	16	16

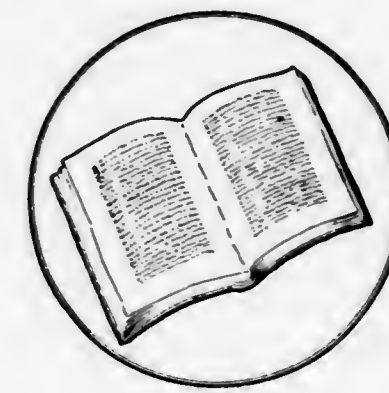
SPECIAL STUDENTS IN AGRICULTURE

Mature students (see Special Students, Sect. I) may, with consent of the Dean, register as special students and pursue a program of studies not included in any regular curriculum, but arranged to meet the needs of the individual. All university fees for these special students are the same as fees for regular students.

There are many young farmers who desire to take short intensive courses in their special lines of work during slack times on the farm. Arrangements have been made to permit such persons to register at the office of the Dean of the College of Agriculture and receive cards granting them permission to visit classes and work in the laboratories of the different departments. This opportunity is created to aid florists, poultrymen, fruit-growers, gardeners, or other especially interested persons who are able to get away from their work at some time during the year.

The regular charges are \$5.00 for registration and \$1.50 per credit hour per month for the time of attendance. One registration is good for any amount of regular or intermittent attendance during a period of four years.

COLLEGE OF
ARTS AND SCIENCES



"The object of a liberal training is not learning, but discipline and the enlightenment of the mind. It is citizenship of the world of knowledge, but not ownership of it."

—Woodrow Wilson,
in "The Spirit of Learning."

COLLEGE OF ARTS AND SCIENCES

L. B. BROUGHTON, *Dean*.REBA A. TURNER, *Secretary to Dean*.

The College of Arts and Sciences provides liberal training in the biological sciences, economics, history, languages and literatures, mathematics, philosophy, the physical sciences, political science, psychology, and sociology. It thus affords an opportunity to acquire a general education as a foundation for whatever profession or vocation the student may choose. In particular, it lays the foundation for the professions of dentistry, law, medicine, nursing, teaching, and theology, and the more technical professions of engineering, public health service, public administration, and business. The College of Arts and Sciences offers to the students of the other colleges of the University training in fundamental subjects, both classical and scientific, which should permit them to acquire the perspective necessary for liberal culture and public service.

Divisions

The College of Arts and Sciences is divided into one Lower Division and four Upper Divisions. Under the latter are grouped the following departments:

- A. The Division of Biological Sciences: Bacteriology, Botany, Entomology, Genetics, and Zoology.
- B. The Division of Humanities: Art, Classical Languages and Literatures, Comparative Literature, English Literature and Philology, Modern Languages and Literatures, Music, Philosophy, and Speech.
- C. The Division of Physical Sciences: Astronomy, Chemistry, Geology, Mathematics, and Physics.
- D. The Division of Social Sciences: Economics, History, Political Science, Psychology, and Sociology.

The work of the first and second years in the College of Arts and Sciences is taken in the Lower Division. It is designed to give the student a basic general education, and to prepare him for specialization in the junior and senior years.

The Upper Divisions direct the courses of study of students doing their major work in the College of Arts and Sciences during their junior and senior years, and designate general requirements, the fulfillment of which is necessary to qualify a student for admission to major work in an Upper Division.

Requirements for Admission

The requirements for admission to the College of Arts and Sciences are, in general, the same as those for admission to the other colleges and schools of the University.

For admission to the premedical curriculum, two years of any one foreign language are required. A detailed statement of the requirements for admission to the School of Medicine and the relation of these to the premedical curriculum will be found under the heading *School of Medicine*, Section III.

Degrees

The degrees conferred upon students who have met the requirements prescribed in the College of Arts and Sciences are Bachelor of Arts and Bachelor of Science.

Students of this college who have completed the regular course in either the Division of Humanities or the Division of Social Sciences are awarded the degree of Bachelor of Arts. Any student who has met the requirements for the degree of Bachelor of Science is awarded that degree, provided the major portion of the work has been done in the field of science, and the application has the approval of the science department in which the major work has been carried.

Students who have elected the combined program of Arts and Sciences and Medicine may be granted the degree of Bachelor of Science after the completion of at least three years of work in this college and the first year of the School of Medicine.

Those electing the combined five-year Academic and Nursing curriculum, for which the degree of Bachelor of Science in Nursing may be awarded upon the completion of the full course, must take the prenursing curriculum at College Park before the Nursing Course in Baltimore.

Those taking the combined course in Arts and Law may be awarded the Bachelor of Arts degree after the completion of three years of the work of this college and one year of the full-time law course, or its equivalent, in the School of Law.

Residence

The last thirty credits of any curriculum leading to a baccalaureate degree in the College of Arts and Sciences must be taken in residence in this University.

Requirements for Degrees

The baccalaureate degree from the College of Arts and Sciences may be conferred upon a student who has satisfied the following requirements:

1. University Requirements.
2. College of Arts and Sciences Requirements.
3. Major and Minor Requirements.
4. Special Upper Division Requirements.

1. *University Requirements*—See Section I.

2. *College of Arts and Sciences Requirements*—A minimum of 120 credits must be acquired, not including the six credits of basic military science

required of all able-bodied men students, or the six credits of physical education for women and for such men as are excused from military science.

A student must acquire at least 58 credits, exclusive of military science and physical education, with an average grade of at least C in the Lower Division, before being admitted to an Upper Division.

The following minimum requirements should be fulfilled, as far as possible, before the beginning of the junior year and must be completed before graduation:

I. English and Speech—fourteen credits. Of these, Survey and Composition I (Eng. 1y) and Reading and Speaking (Speech 1y) are required.

II. Foreign Languages and Literatures—twelve credits of one language.

III. Social Sciences—twelve credits. This requirement is fulfilled by electing courses in Economics, History, Political Science, Psychology, and Sociology.

IV. Natural Sciences and Mathematics—twelve credits. Of these one year must be in natural science.

V. Military Science or Physical Education—six credits.

3. *Major and Minor Requirements*—At the beginning of the junior year each student must select a major in one of the fields of study of an Upper Division, and before graduation must complete a major and a minor. The courses constituting the major and the minor selected must conform to the requirements of the department in which the major work is done.

Before beginning a major or a minor the student should have acquired 12 prerequisite credits in fundamental courses in the field chosen, or in a closely related field satisfactory to the department and the Division, with an average grade of at least C before credit will be allowed towards completion of the major or minor requirements.

A major shall consist, in addition to the 12 prerequisite credits required in the Lower Division, of not fewer than 20 nor more than 36 credits in one of the fields of study. Of these credits at least 10 must be acquired in courses listed for advanced undergraduates and graduates.

A minor shall consist, in addition to the 12 prerequisite credits required in the Lower Division, of not fewer than 12 nor more than 20 credits in some field of study other than the major. At least 8 of these must be acquired in courses listed for advanced undergraduates and graduates.

Not more than 15 credits may be acquired in any field of study other than the major or minor during the last two years, in addition to those which meet the College of Arts and Sciences requirements.

The average grade of the work taken in the major and minor fields must be at least C. A general average of at least C is required for graduation.

4. *Special Upper Division Requirements*—

A. Division of Biological Sciences. See page 92.

B. Division of Humanities. See page 100.

C. Division of Physical Sciences. See page 103.

D. Division of Social Sciences. See page 111.

Certification of High School Teachers

If courses are properly chosen in the field of education, a prospective high school teacher can prepare for high school positions, with major and minor in one of the Upper Divisions of this College.

The College of Education requires that at least twenty credits must be acquired in educational subjects before one can be certified for high school teaching.

Electives in Other Colleges and Schools

A limited number of courses may be counted for credit in the College of Arts and Sciences for work done in other colleges and schools of the University.

The number of credits which may be accepted from the various colleges and schools is as follows:

College of Agriculture—Fifteen.

College of Commerce—Fifteen.

College of Education—Twenty.

College of Engineering—Fifteen.

College of Home Economics—Fifteen.

School of Law—In the combined program the first year of law must be completed.

School of Medicine—In the combined program the first year of medicine must be completed.

School of Nursing—In the combined program the three years of nursing must be completed.

Normal Load

The normal load for the freshman in this college is sixteen credits per semester, including one hour of basic military science or physical education.

The normal load for the sophomore year is seventeen credits per semester, two of which are in military science or physical education.

The normal load in the junior and senior years is 15 credits per semester. With the permission of the Dean of the College of Arts and Sciences and the Chairman of the Division, this load may be increased to 17, a maximum

except for honor students. The load of honor students shall lie within the discretion of the Dean and the Chairman of the Division, but in no case shall it exceed 19 credits per semester.

Advisers

Freshmen and sophomores in this college shall consider the Dean of the College and the Chairman of the Lower Division their general advisers.

On entrance to the University each student of the College of Arts and Sciences is assigned to a member of the faculty of the College, who serves as his special adviser. The student should consult his special adviser on all matters of his university life in which he may need advice.

Juniors and seniors must consider the chairmen of their major departments their advisers, and shall consult them about the arrangements of their schedules of courses and any other matters in which they may desire advice.

THE LOWER DIVISION

The work of the first two years in the College of Arts and Sciences is designed to give the student a basic general education, and to prepare him for specialization in the junior and senior years.

It is the student's responsibility to develop in these earlier years such proficiency in basic subjects as may be necessary for his admission into one of the Upper Divisions of the College. Personal aptitude and a general scholastic ability must also be demonstrated, if permission to pursue a major study is to be obtained.

Suggested courses of study for the freshman and sophomore years are given under certain of the Upper Divisions. The student should follow the curriculum for which he is believed to be best fitted. It will be noted that there is a great deal of similarity in these outlines for the first two years, and a student need not consider himself attached to any particular Upper Division until the beginning of his junior year, at which time it is necessary to select a major.

The minimum requirements of the College of Arts and Sciences, as outlined on page 87, should be completed as far as possible in the Lower Division.

Arts and Science Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Required:		
*Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
Foreign Language	3	3
Science (Botany, Chemistry, Physics, Zoology).....	3 or 4	3 or 4
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	
Elect from the following so that the total credits each semester are 16 or 17:		
H. 1fs—A Survey of Western Civilization.....	3	3
H. 3fs—History of England and Great Britain.....	3	3
H. 5, 6—American History	3	3
Math. 8, 9; 21, 22—Mathematics.....	3 or 4	3 or 4
Bus. 1—Economic Geography	3	—
Bus. 4—Development of Commerce and Industry.....	—	3
Pol. Sci. 1—American National Government.....	3	or 3
Pol. Sci. 4—State and Local Government.....	—	3
Latin or Greek	3	3
L. S. 1—Library Methods.....	1	or 1
Art 1, 2, 3, 4—Art.....	2	2
Mus. 1, 2, 3, 4, 5—Music.....	½ to 2	½ to 2
Dr. 4fs—Mechanical Drawing.....	1	1
	16—17	16—17
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Foreign Language	3	3
General Electives from the College of Arts and Sciences fulfilling, as far as possible, the specific requirements of the College of Arts and Sciences.....	9—10	9—10
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
	17—18	17—18

*A placement test in English is given during Registration Week to assist in determining whether a student is adequately prepared for Eng. 1fs. After this the student is given five weeks trial in Eng. 1f. If he has failed the original examination and is also unsuccessful in an examination at the end of the five weeks period, he is transferred to Eng. A, a preparatory course without credit. He may also be placed in Eng. A if he passes the original examination, but fails the second.

A—DIVISION OF BIOLOGICAL SCIENCES

The Division of Biological Sciences is organized to stimulate close coordination between all activities in the field of biology. The Division includes the Departments of Bacteriology and Zoology.

Each department within the Division has one or more established curricula. To meet the demands for technically trained workers in the biological sciences these curricula are designed to give specialized training, particularly during the last two years of college work. They provide, more specifically, the basic knowledge and experience required for (1) teaching in secondary schools; (2) research and regulatory work in federal, state, and municipal departments and bureaus; (3) admission to graduate study in the preparation for college teaching and advanced research; and (4) entrance to the professional schools of medicine, dentistry, and nursing.

Instruction

Alliance of the biological sciences presents an opportunity for the pursuit of a well coordinated program of study. Completion of a suggested undergraduate curriculum under any one of the departments fulfills the requirements for the degree of Bachelor of Science. Advanced work also is presented in each of the biological sciences for the degrees of Master of Science and Doctor of Philosophy.

Although the undergraduate training in any Department of the Division is both thorough and well-balanced, nevertheless, one or more years of post-graduate instruction and experience and the attainment of an advanced degree are desirable in preparation for the larger opportunities that arise in this rapidly expanding field. The need for workers in the fields of agriculture, home economics, industry, public health, etc., presents almost unlimited opportunities for specialization and has made it necessary to correlate closely the undergraduate courses in this Division with those offered in the Graduate School in order to equip the advanced student adequately in his own work and in related fields.

A special curriculum in General Biological Science is presented primarily for those interested in teaching biological science or general science in elementary and high schools. Students in the preprofessional schools who expect to complete their work for the degree of Bachelor of Science may, in following the preprofessional curriculum, complete a major in certain departments of the Division of Biological Sciences by the proper selection of courses.

The particular professions and lines of work for which each department in this Division prepares its students are outlined in greater detail under the description of each department.

Requirements for Graduation

1. *University Requirements.* See Section I.
2. *College of Arts and Sciences Requirements.*

3. *Physical Sciences*—Ten semester hours in addition to the twelve required by the College of Arts and Sciences, the total to include basic courses in chemistry, physics, and mathematics.

Fields of Study

The curriculum outlined in each field of study represents the courses which, in the judgment of the Department and Division, are necessary for an adequate training in the particular subject. In most curricula enough electives are included to give the student ample opportunity to study subjects outside his major or minor departments in which he may have become interested or in which further training is desired.

The courses in Bacteriology prepare students for such positions as dairy, sanitary, food, and soil bacteriologists in federal, state, and municipal departments and for public health, research, and industrial positions.

BACTERIOLOGY

The Department has been organized with two purposes in view. The first is to provide a high degree of training for positions as bacteriologists in federal, state and municipal laboratories; as well as trained technicians in hospital, clinic or private laboratories; and as control or research bacteriologists in sanitary, dairy, food or soil science.

The second is to make available to all students of the University a general knowledge of bacteriology and its applications. A variety of courses make it possible for every student to go as extensively into the many phases of public health, food and sanitary bacteriology as may be desired.

Bacteriology

The curriculum in Bacteriology is arranged to provide training in all the principle phases of the science, namely, (1) the cause and prevention of disease, including the identification of the causative bacteria, (2) the phenomena of immunity, including its application in disease, (3) the laboratory diagnostic procedures for medical technicians, (4) the microbiology of foods and milk, soil, sanitation and water purification and (5) bacterial metabolism and classification. College graduation is becoming a prerequisite for entrance into all branches of public health and bacteriological work.

The basic course in General Bacteriology is designed to present the fundamental nature of microorganisms and their importance and function in the lives of man, plants and animals. For major students, it is required that they follow the course in General Bacteriology with the course designated Bacteriological Technique. This course is a prerequisite to all other bacteriology laboratory courses. One then proceeds with other courses as outlined in the suggested curriculum.

All of the subjects listed are required for graduation and should be adhered to closely if one plans a four-year program. However, because of the unprecedented demand for bacteriologists in both the Armed Services

and Civilian Life, a student may plan an accelerated or a three-year program. Such a student will find it necessary to deviate from the sequence presented in the curriculum and except for certain basic requirements he will be permitted considerable leeway.

In addition to the basic training represented in the curriculum the work of each student is correlated with his or her particular interests.

Post graduate study is especially encouraged, primarily for those men and women who prefer to go into research, industrial work or the teaching profession. Facilities are available for investigations in the fields of general, medical, food and sanitary bacteriology, as well as in various aspects of bacterial physiology.

University and Experiment Station Fellowships are available to graduate students of high standing. Students receiving Fellowships will carry on research along specified lines, and usually assist with laboratory instruction in the beginning classes. Experience in teaching bacteriology is desirable for all graduate students, and opportunities will be made available in so far as the facilities of the Department permit. Fellowships sponsored by commercial concerns also are frequently available, and offer opportunities for research in problems important to industry, with frequent opportunities for business contacts.

Freshmen planning to major in Bacteriology should elect Mathematics and may substitute General Bacteriology (Bact. 1) for either Botany or Zoology in the first year. All students planning to major in Bacteriology should consult the Department before registration.

Bacteriology Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Chem. 1fs—General Chemistry.....	4	4
Bact. 1—General Bacteriology	3	—
Bact. 5—Bacteriological Technique	—	2
Math. 8, 9—Elements of College Mathematics.....	3	3
Speech 1fs—Public Speaking.....	1	1
Biology (Botany or Zoology).....	—	3-4
M. I. 1fs—Basic R. O. T. C. (Men).....	1-1	—
Phys. Ed. 6fs—Personal Hygiene (Women).....	1/2-1/2	1
Phys. Ed. 8fs—Physical Activities (Women).....	1/2-1/2	—
	15	17-18

	Semester	
	I	II
<i>Sophomore Year</i>		
Bact. 60—Public Health	1	—
Bact. 2—Pathogenic Bacteriology.....	—	4
Chem. 12Afs—Elements of Organic Chemistry.....	2	2
Chem. 12Bfs—Elements of Organic Laboratory.....	1	1
Language	3	3
Eng. 4, 5—Expository Writing.....	2	2
M. I. 2fs—Basic R. O. T. C. (Men).....	2-2	—
Phys. Ed. 6fs—Community Hygiene (Women).....	1-1	2
Phys. Ed. 8fs—Physical Activities (Women).....	1-1	—
Electives	5-7	2-4
	16-18	16-18

Junior Year

Bact. 101—Milk Bacteriology.....	4	—
Bact. 112—Sanitary Bacteriology.....	—	3
Bact. 115—Serology	4	—
Bact. 116—Epidemiology	—	2
or		1
Bact. 60—Public Health.....	4	4
Physics 1fs—General Physics.....	—	—
Electives:	3	3
Social Science	2-3	4-6
Other	—	—
	17-18	16-17

Senior Year

Bact. 111—Food Bacteriology.....	3	—
Bact. 90, 91—Journal Club.....	1	1
Chem. 50A—General Physiological Chemistry.....	—	2
Chem. 50B—General Physiological Chemistry Laboratory.....	—	2
Electives:	3	3
Social Sciences	2-3	4-6
Bacteriology	5-7	1-4
Other	—	—
	15-16	15-16

Medical Technology

The Department of Bacteriology offers under its direction two years of training for those students desiring to become Medical Technicians, but who are not in a position to complete the four year curriculum in Bacteriology.

The modern practice of medicine requires the aid of the laboratory and trained personnel for this service. The clinical laboratory technician is a person who by education and training is capable of performing the various routine microscopic, chemical, and bacteriological tests used in the diagnosis and treatment of disease.

The curriculum in medical technology gives the student training in Biology, Bacteriology, Chemistry and Physics. These basic sciences are required before the student undertakes practical hospital training.

The curriculum is essentially that required in the first two years of a major student in Bacteriology. The Bacteriology Department offers under its direction only this basic training. Before qualifying as a Medical Technologist the student must spend at least twelve months in a hospital laboratory under proper supervision in order to obtain practical experience in the routine laboratory procedures.

Further information may be obtained from the Department of Bacteriology.

Food Technology

This curriculum offers combinations of courses that will equip the student with an unusually broad knowledge of the many aspects involved in food manufacture. In the curriculum are combined many of the fundamentals of biology, chemistry, and engineering which, when supported by the proper electives and by practical experience, will serve as an excellent background for supervisory work in food factory operation, salesmanship, research in the food industries, etc.

Food Technology Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Chem. 1fs—General Chemistry.....	4	4
Bact. 1—General Bacteriology.....	3	—
Bact. 5—Bacteriological Technique.....	—	2
Math. 8, 9—Elements of College Mathematics.....	3	3
Speech 1fs—Public Speaking.....	1	1
Biology (Botany or Zoology).....	—	3-4
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 6fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 8fs—Physical Activities (Women).....	½—½	
	—	—
	15	17-18

	Semester	
	I	II
<i>Sophomore Year</i>		
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory.....	2	2
Physics 1fs—General Physics.....	4	4
Dr. 1—Engineering Drawing.....	2	—
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
Electives	5	6
	—	—
	17	16
<i>Junior Year</i>		
M. E. 102—Refrigeration.....	—	3
Bact. 111—Food Bacteriology.....	3	—
Econ. 31, 32—Principles of Economics.....	3	3
Bact. 112—Sanitary Bacteriology.....	—	3
Chem. 103Afs—Elements of Physical Chemistry.....	2	2
Chem. 103Bfs—Elements of Physical Chemistry Laboratory..	1	1
Speech 4fs—Advanced Public Speaking.....	2	2
Electives	5-6	2-3
	—	—
	16-17	16-17
<i>Senior Year</i>		
Bus. 137s—Industrial Management.....	—	3
Chem. 115fs—Food Analysis.....	2	2
Food Tech. 130fs—Technology Conference.....	1	1
Food Tech. 110—Regulatory Control.....	1	—
Food Tech. 120—Food Sanitation.....	—	2
Electives	12-13	8-9
	—	—
	16-17	16-17

ZOOLOGY

The Zoology Department offers courses designed to train students for teaching and for service in the biological bureaus of the United States Government and in the biological departments of the various states. Emphasis is placed on morphology, physiology, and marine biology. Instruction and opportunities for original investigation in the latter are supplemented by the research facilities and courses of instruction offered at the Chesapeake Biological Laboratory.

Chesapeake Biological Laboratory

This laboratory, located in the center of the Chesapeake Bay country, is on Solomons Island, Maryland. It is sponsored by the University of Maryland in cooperation with the Maryland Conservation Department, Goucher College, Washington College, Johns Hopkins University, Western Mary-

land College, and the Carnegie Institution of Washington, in order to afford a center for wild life research and study where facts tending toward a fuller appreciation of nature may be gathered and disseminated. The program projects a comprehensive survey of the biota of the Chesapeake region.

The laboratory is open throughout the year. Courses are offered for advanced undergraduate and graduate students, during a six-week summer session, in the following subjects: Protozoology, Economic Zoology, Invertebrates, Ichthyology, Algae, and Diatoms. Not more than two courses may be taken by a student, who must meet the requirements of the Department of Zoology as well as those of the laboratory before matriculation. Classes are limited to eight matriculants. Students pursuing a special research may establish residence for the summer, or for the entire year.

Laboratory facilities; boats of various types fully equipped with pumps, nets, dredges, and other apparatus; and shallow water collecting devices are available for the work without cost to the students.

For further information about work at the Chesapeake Biological Laboratory, apply to Dr. R. V. Truitt, Director, College Park, Maryland.

Zoology Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Zool. 2fs—Fundamentals of Zoology.....	4	4
Chem. 1fs—General Chemistry.....	4	4
Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
Modern Language (French or German).....	3	3
M. I. 1fs.—Basic R. O. T. C. (Men)..... 1—1	1	1
Phys. Ed. 6fs—Personal Hygiene (Women)..... ½—½		
Phys. Ed. 8fs—Physical Activities (Women)..... ½—½		
	—	—
	16	16

Sophomore Year

Zool. 4—Comparative Vertebrate Morphology.....	—	3
Zool. 20—Vertebrate Embryology.....	3	—
Eng. 2, 3—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Biological Electives	4	4
Math. 8, 9—Elements of College Mathematics.....	3	3
M. I. 2fs—Basic R. O. T. C. (Men)..... 2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women)..... 1—1		
Phys. Ed. 8fs—Physical Activities (Women)..... 1—1		
	—	—
	18	18

	Semester	
	I	II
<i>Junior Year</i>		
Zool. 108—Animal Histology.....	3	—
Zool. 104—Genetics	3	—
Phys. 1fs—General Physics.....	4	4
Zoology, Electives	3	3
Electives	2	8
	—	—
	15	15
<i>Senior Year</i>		
Zool. 75fs—Journal Club.....	1	1
Zool. 103fs—General Animal Physiology.....	3	3
Electives	11	11
	—	—
	15	15

GENERAL BIOLOGICAL SCIENCES

A curriculum has been prepared for students who are interested in biology but whose interests are not centralized in any one of the biological sciences. The courses as outlined familiarize the student with the general principles and methods of each of the biological sciences.

By the proper selection of courses during the junior and senior years a student may concentrate his work sufficiently in any one of the fields of study to be able to continue in graduate work in that field. Also by a proper selection of electives, the educational requirements of the State Department of Education for certification can be met.

Requirements

A major and a minor, comprising together not fewer than 52 credits, shall be completed in the Departments included in the Division of Biological Sciences, with at least 18 of these credits in the courses for advanced undergraduates and graduates in the Division.

Curriculum for General Biological Sciences

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Speech 1fs—Public Speaking.....	1	1
Chem. 1fs—General Chemistry.....	4	4
Bot. 1—General Botany.....	4	—
Zool. 1—General Zoology.....	—	4
M. I. 1fs—Basic R. O. T. C. (Men)..... 1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... ½—½		
Phys. Ed. 4fs—Physical Activities (Women)..... ½—½		
	—	—
	16	16

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Math. 8, 9—Elements of College Mathematics.....	3	3
Modern Language (French or German).....	3	3
Ent. 1—Introductory Entomology.....	3	—
Bact. 1—General Bacteriology.....	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
Electives (Biological Sciences).....	4	4
	18	18
<i>Junior Year</i>		
Phys. 1fs—General Physics.....	4	4
Electives (Social Sciences).....	3	3
Electives (Biological Sciences).....	6	6
Electives	3	3
	16	16
<i>Senior Year</i>		
Electives (Social Sciences).....	3	3
Electives (Biological Sciences).....	9	9
Electives	3	3
	15	15

B—THE DIVISION OF HUMANITIES

The Division of Humanities is composed of the Departments of Art, Classical Languages, Comparative Literature, English Language and Literature, Modern Languages and Literatures, Music, Philosophy, and Speech.

This Division has two main functions: (1) to provide for its own major students a thorough training in literature, philosophy, languages, and the fine arts; (2) to furnish for students in other Divisions, especially for those taking preprofessional work, background and elective studies in the departments of the Division.

At present, the Division offers major and minor work for the Master of Arts and the Doctor of Philosophy degrees in English Language and Literature and in Modern Languages and Literatures; major work for the Linguistics, and minor work in Philosophy. Detailed requirements for these degrees are given under the departmental announcements and in the catalog of the Graduate School.

Training for the Master of Arts degree is directed especially toward acquainting the candidate with methods of research and the literature in

his own fields. For the degree of Doctor of Philosophy, the candidate is required not only to be thoroughly acquainted with his major and minor fields and with the scholarly accomplishments therein, but also to devote himself intensively to a specific research problem in which he shall make an original contribution to human knowledge.

Division Requirements for the Bachelor's Degree

The following requirements in addition to those of the College of Arts and Sciences (including a general average of C, see page 88) should be completed, as far as possible, before the beginning of the junior year.

1. *Library Science*—one credit.
2. *English 2, 3*—six credits.
3. *Foreign Language*—To be accepted unconditionally in the Division of Humanities, a student must have attained a reading knowledge of at least one foreign language, either ancient or modern. In satisfaction of this requirement, he must pass one of the general language examinations, which are given during the first and last days of each semester, with a grade as high as C. Maryland students should take the examination not later than the close of the sophomore year or the beginning of the junior year. Transfer students should take the examination upon entrance. The student must show in this examination that he has attained the reading ability to be expected after two years of a college language course. When the student has passed the general language examination; he will have satisfied the language requirements; but in no case will a student in the Division be graduated who has not acquired at least 12 credits of one foreign language in college.
4. *Philosophy*—three credits.
5. *Psychology*—three credits.
6. *Major and Minor Requirements*—In selecting a major or a minor, a student must have acquired twelve credits in fundamental courses in the field chosen, or in a closely related field satisfactory to the department and the Division, with an average grade of at least C, before credit will be allowed toward the completion of the major or minor requirements. In addition:

A major shall consist of not fewer than 20 nor more than 36 credits, in addition to the 12 credits required in the Lower Division in one of these fields of study. At least 15 of these credits must be taken in courses listed for advanced undergraduates and graduates.

A minor shall consist of not fewer than 12 nor more than 20 credits, in addition to the 12 credits required in the Lower Divi-

sion, in one of the above fields of study not selected for the major, or in some other field of study authorized in the College of Arts and Sciences. At least 9 of these credits must be taken in courses listed for advanced undergraduates and graduates.

The student must acquire at least 30 credits in courses not included in the major or minor.

MAJOR AND MINOR

Fields of Study

Comparative Literature	*Greek
English	Latin
French	*Philosophy
**General Linguistics	Speech
German	Spanish

Additional Requirements in English

In addition to the twelve hours of basic freshman and sophomore English, a student taking his major work in this department must pass one semester of Advanced Writing or Magazine Writing, one semester of College Grammar, and one semester of either History of the English Language or Old English. In addition, he must complete one of the schedules below:

a. Major work in general literature (recommended for those preparing to teach English in secondary schools): Introduction to American Literature, Shakespeare, and at least six hours from the following: Milton; Literature of the 18th Century; Prose and Poetry of the Romantic Age; Victorian Literature; Modern and Contemporary British Poets; Emerson, Thoreau, and Whitman; American Fiction; Contemporary American Poetry and Prose; the English Novel; Elizabethan Drama; Major American Poets.

b. Major work in American Literature; Survey of American Literature, and twelve hours of upperclass courses in American Literature.

c. Major work in drama: Shakespeare, and twelve hours from the following: Medieval Drama, Elizabethan Drama, Modern Drama, Contemporary Drama, American Drama, Play Production, Introduction to Comparative Literature (first semester), The Spanish Drama, The Faust Legend, Ibsen.

d. Major work in English Literature: Shakespeare, and at least twelve hours in the department in advanced courses other than American Literature.

Minor work may also be elected in these fields, but no major and minor combination of a. and b. or of a. and d. will be permitted.

*Not available at present for a major.

**Major only for Master of Arts Degree.

Additional Requirements in Modern Languages

All students whose major is in Modern Languages are required to take *Introductory Survey of Comparative Literature* (Comp. Lit. 101, 102), and they are strongly advised to take the review course (French 99, German 99, Spanish 99). The following courses are recommended: *Survey of Western Civilization* (H. 1fs), *Introduction to Philosophy* (Phil. 1), *The Old Testament as Literature* (Comp. Lit. 104), *Prose and Poetry of the Romantic Age* (Eng. 113, 114), *Romanticism in France and Germany* (Comp. Lit. 105, 106). For a major in German, Old English and Beowulf (Eng. 102, 103).

Specific requirements for the majors in the different languages are as follows: French—French 59fs, 60fs, 75, 76, and three additional year-courses in literature in the 100 group; German—German 60fs, 75, 76, and three additional year-courses in the 100 group; Spanish—Spanish 60fs, 75, 76, and at least 16 hours in the 100 group.

Honors in English

Qualified major students who wish to read for honors in English should apply to the chairman of the department. The reading may be done in the last two years, but should, if possible, be begun earlier.

C—THE DIVISION OF PHYSICAL SCIENCES

The Division of Physical Sciences is composed of the departments of Astronomy, Chemistry, Geology, Mathematics, and Physics. On the following pages the division outlines a number of curricula, each requiring four years for completion, leading to the degrees of Bachelor of Science or Bachelor of Arts together with five year programs in Chemistry-Chemical Engineering and Applied Physics. The departments of study have developed courses to contribute to the liberal education of students not primarily interested in science; to provide the basic knowledge of the physical sciences necessary in so many professions such as agriculture, dentistry, engineering, home economics, medicine, pharmacy, and others; to equip teachers of the Physical Sciences for secondary schools and colleges; and to train students for professional service as chemists, chemical engineers, geologists, mathematicians, physicists, and statisticians; and to prepare for graduate study and research in the Physical Sciences.

The fields of knowledge represented by the Physical Sciences are so vast and their applications are so important that it is impossible to deal adequately with any one in a four-year undergraduate curriculum. Students who aspire to proficiency are therefore encouraged to continue their studies in the graduate years. In the work leading to a Master's degree, the student becomes acquainted with the general aspects of the field. In partial fulfillment of the requirements for the degree of Doctor of Philosophy, the student must demonstrate a command of his chosen field sufficiently great to permit him to make independent investigations and creative contributions.

No degree will be granted to a student in any department of Physical Sciences whose general average in all courses offered for the degree is below C. To enroll in the Division of Physical Sciences, at the beginning of the junior year a student must select a major in one of the departments and before graduation must complete a major and a cognate minor selected to conform to the requirements of the department in which the major work is done.

The candidate for a baccalaureate degree in the College of Arts and Sciences will be governed by the requirements for that degree established by the University and the College. A student will be considered a major in one of the Departments of the Division of Physical Sciences only when he has completed a program approved by the department concerned. The following suggested curricula outline the general requirements of these departments.

For the University requirements see Section I.

For the College of Arts and Sciences requirements and major and minor requirements see page 88.

MATHEMATICS

The Mathematics curriculum is designed for students who desire a thorough training in the fundamentals of Mathematics in preparation for teaching, research, or graduate work in Mathematics.

Students majoring in mathematics who have completed freshman and sophomore courses in mathematics with distinction in the honors sections are eligible to try for honors in mathematics. To receive the honors degree in mathematics, a student must: (1) complete the curriculum in mathematics with an average grade of B in all subjects; (2) pass on honors examination in mathematics at the end of the senior year; (3) write a satisfactory thesis on an assigned topic in mathematics in the latter half of the senior year. Students who wish to try for honors in mathematics should consult the chairman of the department at the conclusion of their sophomore year.

The curriculum suggested below offers the student a minor in Physics. It is possible, however, for the student to minor in other fields, such as statistics or chemistry.

Mathematics Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Math. 21—College Algebra and Plane Trigonometry.....	4	—
Math. 22—Analytic Geometry.....	—	4
Speech 1fs—Public Speaking.....	1	1
Chem. 1fs—General Chemistry.....	4	4
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	1
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	1
	—	—
	16	16
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Math. 23fs—Calculus.....	4	4
Phys. 2fs—General Physics.....	5	5
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	2
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	2
	—	—
	17	17
<i>Junior Year</i>		
Math. 141, 142—Higher Algebra.....	2	2
Phys. 101—Precision of Measurements.....	3	—
Phys. 106—Theoretical Mechanics.....	—	3
Phys. 111, 112—Mathematical Physics.....	3	3
Math. 18fs—Pictorial Geometry.....	2	2
Elective (Social Sciences).....	3	3
Math. 153—Advanced Differential Equations.....	2	—
Math. 154—Topics in Analysis.....	—	2
	—	—
	15	15
<i>Senior Year</i>		
Math. 130, 131—Analytic Mechanics.....	2	2
Math. 143, 144—Advanced Calculus.....	2	2
Math. 151—Theory of Equations.....	2	—
Math. 140—Mathematical Seminar.....	2	2
Phys. 109fs—Electron Physics.....	3	3
Electives (Including 6 credits in Social Sciences).....	4	6
	—	—
	15	15

CHEMISTRY

The Department of Chemistry includes agricultural and biological, analytical, inorganic, organic, and physical chemistry. The following curriculum provides students with a well rounded training in chemistry that is adequate preparation for the pursuit of graduate work.

Chemistry Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Math. 21—College Algebra and Plane Trigonometry.....	4	—
Math. 22—Analytic Geometry	—	4
Chem. 1fs—General Chemistry.....	4	4
Speech 1fs—Public Speaking.....	1	1
Dr. 4fs—Mechanical Drawing	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... $\frac{1}{2}$ — $\frac{1}{2}$		
Phys. Ed. 4fs—Physical Activities (Women)..... $\frac{1}{2}$ — $\frac{1}{2}$		
	17	17
<i>Sophomore Year</i>		
Eng. 4, 5—Expository Writing	2	2
Modern Language (French or German).....	3	3
Math. 23fs—Calculus	4	4
Chem. 2fs—Qualitative Analysis	3	3
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory	2	2
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	18	18
<i>Junior Year</i>		
Chem. 6fs—Quantitative Analysis	4	4
Chem. 116fs—Advanced Organic Chemistry	2	2
Chem. 117fs—Organic Laboratory	2	2
Phys. 2fs—General Physics	5	5
Electives (Social Sciences).....	2	2
	15	15

Senior Year

	Semester	
	I	II
Chem. 102Afs—Physical Chemistry	3	3
Chem. 102Bfs—Physical Chemistry Laboratory.....	2	2
Chem. 118fs—Advanced Organic Laboratory	1	1
English Language or Literature.....	2	—
Electives (Six must be in Social Sciences).....	7	9
	15	15

PHYSICS

Two curricula are offered in Physics, (1) the General Physics curriculum for students who desire a thorough training in the fundamentals of Physics in preparation for graduate work, research, and the teaching of Physics, (2) the Applied Physics curriculum for students who desire to train for industrial and applied physical research. The latter is intended to prepare students for positions in governmental laboratories and in the laboratories established by many industries for testing, research, and development through the application of physical principles and tools.

The completion of the first four years of the latter curriculum leads to the degree of Bachelor of Science in Physics; the completion of the five years with a satisfactory thesis to that of Master of Science in Physics.

General Physics Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition	3	3
Modern Language (French or German)	3	3
Math. 21—College Algebra and Plane Trigonometry.....	4	—
Math. 22—Analytic Geometry	—	4
Chem. 1fs—General Chemistry.....	4	4
Dr. 4fs—Mechanical Drawing	1	1
Speech 1fs—Public Speaking.....	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... $\frac{1}{2}$ — $\frac{1}{2}$		
Phys. Ed. 4fs—Physical Activities (Women)..... $\frac{1}{2}$ — $\frac{1}{2}$		
	17	17

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Math. 23fs—Calculus	4	4
Phys. 2fs—General Physics	5	5
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	17	17
<i>Junior Year</i>		
Advanced Mathematics	2	2
Advanced Physics	6	6
Elective (Chemistry)	3	3
Electives	4	4
	—	—
	15	15
<i>Senior Year</i>		
Chem. 102Afs—Physical Chemistry	3	3
Chem. 102Bfs—Physical Chemistry Laboratory.....	2	2
Advanced Physics	6	6
Electives	4	4
	—	—
	15	15
<i>Applied Physics Curriculum</i>		
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
German 1fs—Elementary German.....	3	3
Math. 21—College Algebra and Plane Trigonometry.....	4	—
Math. 22—Analytic Chemistry	—	4
Chem. 1fs—General Chemistry	4	4
Dr. 4fs—Mechanical Drawing	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women).....½—½		
Phys. Ed. 4fs—Physical Activities (Women).....½—½		
	—	—
	17	17

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
German 5fs—Intermediate Scientific German.....	3	3
Math. 23fs—Calculus	4	4
Phys. 2fs—General Physics	5	5
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	17	17
<i>Junior Year</i>		
Electives (Social Sciences).....	3	3
Math. 64—Differential Equations for Engineers.....	3	—
Mech. 1—Statics and Dynamics	—	3
M. E. 51—Thermodynamics	3	—
Surv. 1—Elements of Plane Surveying.....	1	—
Phys. 101—Precision of Measurements.....	3	—
Phys. 108fs—Electricity	3	3
Phys. 107—Optics	—	3
Chem. 4—Quantitative Analysis	—	4
	—	—
	16	16
<i>Senior Year</i>		
Electives (Social Sciences).....	3	3
Mech. 51—Strength of Materials.....	3	—
E. E. 50—Principles of Electrical Engineering.....	—	3
Chem. 102Afs—Physical Chemistry.....	3	3
Phys. 105—Heat	3	—
C. E. 51—Hydraulics.....	—	3
Elective (Physics)	4	3
	—	—
	16	15
<i>Fifth Year</i>		
Electives (Engineering)	3	3
Electives (Physics)	6	6
Electives	3	3
	—	—
	12	12

GENERAL PHYSICAL SCIENCES

For students who desire a general basic knowledge of the physical sciences without immediate specialization in any one of them, a general curriculum is offered. By proper selection of courses in the junior and senior years a student may concentrate his work sufficiently in any one of the fields of study to be able to continue in graduate work in that field.

A major and a minor comprising together not fewer than 62 credits shall be completed in the Departments included in the Division of Physical Sciences with at least 18 of the credits in courses of the Division listed for advanced undergraduates and graduates.

Curriculum for General Physical Sciences

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Math. 21—College Algebra and Plane Trigonometry.....	4	—
Math. 22—Analytic Geometry	—	4
Chem. 1fs—General Chemistry.....	4	4
Speech 1fs—Public Speaking.....	1	1
Dr. 4fs—Mechanical Drawing	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women).....½—½		
Phys. Ed. 4fs—Physical Activities (Women).....½—½		
	—	—
	17	17
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Math. 23fs—Calculus	4	4
Phys. 2fs—General Physics	5	5
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	17	17
<i>Junior Year</i>		
Electives (Chemistry)	3	3
Electives (Social Sciences).....	3	3
Electives (Mathematics)	2	2
Electives (Biological Sciences).....	4	4
Electives	3	3
	—	—
	15	15

	Semester	
	I	II
<i>Senior Year</i>		
Electives (Social Sciences).....	3	3
Electives (Physics)	3	3
Electives (Physical Sciences).....	6	6
Electives	3	3
	—	—
	15	15

D—THE DIVISION OF SOCIAL SCIENCES

The Division of Social Sciences includes the departments of Economics, History, Political Science, Psychology, and Sociology.

In addition to supplying such courses as are required by other divisions and other colleges of the University, the departments in the Division of Social Sciences offer opportunities for advanced training in the several fields represented. A major in Economics is available for students in the College of Arts and Sciences. During the freshman and sophomore years, in addition to the College of Arts and Sciences requirements, Principles of Economics (Econ. 51f, 52s) should be completed and as many other lower division social science courses taken as practicable. The Department of Political Science offers the first three years of a combined Arts-Law course and also offers training in the field of public administration. The Department of Psychology is identified with the development of applied psychology and is in position to supply training in the industrial and clinical phases of the subject. The Department of Sociology provides a course of study preparatory to professional training in social work and offers the courses demanded by civil service examinations for certain positions. All five departments present courses aligned with the teacher-training program represented in the Arts-Education curriculum.

All of the departments offer graduate instruction leading to the degrees of Master of Arts and Doctor of Philosophy. These advanced degrees are increasingly required for secondary school teaching and for professional positions in the several fields represented.

Requirements for Graduation

1. *University requirements*, see page 31.
1. *College of Arts and Sciences requirements*, see page 87.
3. *Major and Minor requirements*, see page 88.

Major and Minor Fields of Study

Economics	Psychology
History	Sociology
Political Science	

Additional Requirements in History

In addition to the general requirements of the University and of the College of Arts and Sciences, the History Department requires that all credits for a major and at least 12 credits for a minor be acquired in courses offered for advanced undergraduates and graduates. No work below a grade of C will be accepted towards a major. History majors must also take twelve hours of the three fundamental courses (H. 1fs; H. 3fs; H. 5, 6).

Combined Program in Arts and Law

The School of Law of the University requires two years of academic credit for admission to the school, or sixty semester hours of college credit.

The University also offers a combined program in Arts and Law, leading to the degrees of Bachelor of Arts and Bachelor of Laws. Students pursuing this combined program will spend the first three years in the College of Arts and Sciences at College Park. During this period they will complete the prescribed curriculum in prelegal studies as outlined below, or a total of 98 credit hours, and they must complete the Requirements for Graduation, as indicated on page 87. If students enter the combined program with advanced standing, at least the third full year's work must be completed in residence at College Park. Upon the successful completion of one year of full-time law courses in the School of Law in Baltimore, the degree of Bachelor of Arts may be awarded on the recommendation of the Dean of the School of Law. The degree of Bachelor of Laws may be awarded upon the completion of the combined program.

Arts-Law Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Science or Mathematics.....	3	3
H. 3fs—History of England and Great Britain.....	3	3
Pol. Sci. 1—American National Government.....	3	—
Pol. Sci. 4—State and Local Government.....	—	3
Foreign Language	3	3
Speech 1fs—Public Speaking.....	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	1
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	
	—	—
	17	17

	Semester	
	I	II
<i>Sophomore Year</i>		
English	3	3
Science or Mathematics.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
H. 5, 6—American History.....	3	3
Foreign Language	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
	—	—
	17	17
<i>Junior Year</i>		
Psych. 1—Introduction to Psychology.....	3	—
Pol. Sci. 131—Constitutional Law.....	3	—
Pol. Sci. 134—Administrative Law.....	—	3
H. 115fs—Constitutional History of the United States.....	3	3
Pol. Sci. 124—Legislatures and Legislation.....	—	3
Electives	6	6
	—	—
	15	15

Senior Year

The student may elect either the curriculum for the first year of the School of Law or a fourth year's work from advanced courses offered in Political Science. In either case all of the requirements of the Division of Social Sciences and the College of Arts and Sciences for graduation must have been met.

PUBLIC ADMINISTRATION

The following suggested curriculum, consisting of a major in Political Science and a minor in Economics, is offered for the benefit of those students who are looking forward to an administrative career in the public service.

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Science or Mathematics.....	3	3
H. 5, 6—American History.....	3	3
Pol. Sci. 1—American National Government.....	3	—
Pol. Sci. 4—State and Local Government.....	—	3
Foreign Language	3	3
Speech 1fs—Public Speaking.....	1	1
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	1
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	
	—	—
	17	17

	Semester	
	I	II
<i>Sophomore Year</i>		
English	3	3
Science or Mathematics	3	3
Econ. 31, 32—Principles of Economics	3	3
Pol. Sci. 7, 8—Comparative Government	2	2
Foreign Language	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....1—1	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	16	16
<i>Junior Year</i>		
Psych. 1—Introduction to Psychology.....	3	—
Fin. 43—Money and Banking.....	—	3
Stat. 14—Elements of Statistics.....	3	—
Econ. 131—Labor and Government.....	—	3
or	—	3
Econ. 145—Public Utilities.....		
Pol. Sci. 111—Principles of Public Administration.....	3	—
Pol. Sci. 112—Public Personnel Administration.....	—	3
Pol. Sci. 64—Municipal Government and Administration.....	3	—
Electives	3	6
	—	—
	15	15
<i>Senior Year</i>		
Econ. 190—Advanced Economic Principles.....	—	3
Econ. 191—Contemporary Economic Thought.....	3	—
Fin. 106—Public Finance.....	—	3
Pol. Sci. 123—Government and Business.....	3	—
or	3	—
Pol. Sci. 126—Government and Social Security.....		
Pol. Sci. 114—Public Budgeting.....	—	3
Pol. Sci. 124—Legislatures and Legislation.....	—	3
Pol. Sci. 131—Constitutional Law.....	3	—
Pol. Sci. 134—Administrative Law.....	—	3
Electives	6	—
	—	—
	15	15

ECONOMICS

A major in Economics is available to students in the College of Arts and Sciences. During the freshman and sophomore years, in addition to the requirements of the College of Arts and Sciences, Econ. 31, 32, Principles of Economics, and 12 other credits in the social sciences should be completed. Acct. 31fs, Principles of Accounting, is strongly recommended as

an elective course which may be taken in either the sophomore or junior years. Stat. 15fs, Statistics, is also recommended for those students who intend to enter Government work.

	Semester	
	I	II
<i>Economics Curriculum</i>		
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
Foreign Language	3	3
Science or Mathematics	3-4	3-4
	6	6
*Electives		
M. I. 1fs—Basic R. O. T. C. (Men).....1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... $\frac{1}{2}$ — $\frac{1}{2}$		
Phys. Ed. 4fs—Physical Activities (Women)..... $\frac{1}{2}$ — $\frac{1}{2}$		
	—	—
	17-18	17-18

*Elect from the following so that the total credits each semester are 17 or 18:

Pol. Sci. 1—American National Government
 Pol. Sci. 4—State and Local Government
 H. 3fs—History of England and Great Britain
 Econ. 1—Economic Geography
 Econ. 4—Development of Commerce and Industry

<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Foreign Language	3	3
Econ. 31, 32—Principles of Economics	3	3
	6-7	6-7
*Electives		
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	17-18	17-18

*Elect from the following so that the total credits each semester are 17 or 18:

Completion of required 12 credits in Science and Mathematics.

Acct. 31fs. Principles of Accounting
 Stat. 14—Elementary Statistics
 Stat. 15fs—Business Statistics
 Soc. 1—Contemporary Social Problems
 Psych. 1—Introduction to Psychology
 H. 5, 6—American History

Junior Year	Semester	
	I	II
Econ. 43—Money and Banking.....	3	or 3
*Economic Electives	3-6	3-6
Minor Electives	3	3
General Electives	3-4	3-4
Speech or English Electives.....	2-3	2-3
	—	—
	15	15

**To be selected from the following Economics courses:*

Econ. 145, Public Utilities; Econ. 130, Labor Economics; Econ. 161, Fundamentals of Cooperative Enterprise; Econ. 136, Economics of Consumption; Econ. 101, Principles of Marketing; Econ. 102, Principles of International Trade.

Senior Year

Econ. 190—Advanced Economic Principles.....	3	—
*Economic Electives	3	6
Minor Electives	3	3
General Electives	6	6
	—	—
	15	15

**To be selected from the following Economics courses:*

Econ. 151, Comparative Economic Systems; Econ. 152, Social Control of Business; Econ. 111, Corporation Finance; Econ. 163, Economics of Cooperatives; Econ. 191, Contemporary Economic Thought; Econ. 112, Principles of Transportation; Econ. 106, Public Finance.

THE PREPROFESSIONAL CURRICULA FIVE-YEAR COMBINED ARTS AND NURSING

The first two years of this curriculum are taken in the College of Arts and Sciences at College Park. If students enter this combined program with advanced standing, at least the second full year of this curriculum must be completed in College Park.

The remaining three years are taken in the School of Nursing of the University in Baltimore or in the Training School of Mercy Hospital, Baltimore. In addition to the Diploma in Nursing, the degree of Bachelor of Science in Nursing may, upon the recommendation of the Director of the School of Nursing, be granted at the end of the five year curriculum. Full details regarding this curriculum may be found in the section of the catalogue dealing with the School of Nursing. See Section III.

Arts-Nursing Curriculum

Freshman Year	Semester	
	I	II
Eng. 1fs—Survey and Composition	3	3
Foreign Language	3	3
Chem. 1fs—General Chemistry.....	4	4
Speech 1fs—Public Speaking.....	1	1
H. 1fs—A Survey of Western Civilization.....	3	3
or		
H. 3fs—History of England and Great Britain.....	3	3
Pol. Sci. 1—American National Government.....	—	3
L. S. 1—Library Methods.....	1	—
Phys. Ed. 2fs—Personal Hygiene	½	½
Phys. Ed. 4fs—Physical Activities	½	½
	—	—
	16	18
Sophomore Year		
Eng. 4, 5—Expository Writing.....	2	2
Soc. 1—Contemporary Social Problems.....	3	—
Psych. 1—Introduction to Psychology.....	3	—
Econ. 37—Fundamentals of Economics.....	—	3
Bact. 1—General Bacteriology.....	3	—
Zool. 1—General Zoology	—	4
Foreign Language	3	3
Phys. Ed. 6fs—Community Hygiene.....	1	1
Phys. Ed. 8fs—Physical Activities.....	1	1
Elective	—	3
	—	—
	16	17

PREMEDICAL

The minimum requirement for admission to the School of Medicine of the University of Maryland is three years of academic training in the College of Arts and Sciences. Curriculum I as outlined meets these requirements, and also fulfills the requirements prescribed by the Council on Medical Education of the American Medical Association.

Curriculum II is outlined to meet the requirements of the Council on Medical Education of the American Medical Society, which prescribes two years of academic training as the minimum prerequisite for entering a Class A Medical School.

Curriculum I offers to students a combined seven-year program leading to the degrees of Bachelor of Science and Doctor of Medicine. The first three years are taken in residence in the College of Arts and Sciences at College Park, and the last four years in the School of Medicine in Balti-

THE UNIVERSITY OF MARYLAND

more. (See Special Bulletin of School of Medicine for details of quantitative and qualitative premedical course requirements.)

Upon the successful completion of the first year in the School of Medicine, and upon the recommendation of the Dean of the School of Medicine, the degree of Bachelor of Science may be conferred by the College of Arts and Sciences at the Commencement following the second year of professional training.

At least two years of residence are necessary for students transferring from other colleges and universities who wish to become candidates for the two degrees.

For requirements for admission see Admission, Section I.

Premedical Three Year Curriculum

For students expecting to enter the University of Maryland School of Medicine

	Semester	
	I	II
Freshman Year		
Eng. 1fs—Survey and Composition.....	3	3
Math. 8, 9—Elements of College Mathematics.....	3	3
Zool. 2fs—Fundamentals of Zoology.....	4	4
Chem. 1fs—General Chemistry.....	4	4
Modern Language (French or German).....	3	3
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	
	1	1
	—	—
Sophomore Year	18	18
Eng. 2, 3—Survey and Composition.....	3	3
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory.....	2	2
Modern Language (French or German).....	3	3
Zool. 4—Comparative Vertebrate Morphology.....	—	3
Zool. 20—Vertebrate Embryology.....	3	—
Phil. 1—Introduction to Philosophy.....	3	—
Psych. 1—Introduction to Psychology.....	—	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
	2	2
	—	—
	18	18

COLLEGE OF ARTS AND SCIENCES

	Semester	
	I	II
Junior Year		
Phys. 1fs—General Physics.....	4	4
Chem. 103Afs—Elements of Physical Chemistry.....	2	2
Chem. 103Bfs—Elements of Physical Chemistry Laboratory.....	1	1
Speech 1fs—Public Speaking.....	1	1
Electives (Social Sciences).....	3	3
Electives (Biological Sciences).....	4	4
	—	—
	15	15

Senior Year

The curriculum of the first year of the School of Medicine is accepted.

The student also may elect the fourth year from advanced courses offered in the College of Arts and Sciences, fulfilling the requirements for major and minor, or transfer to the General Science Curriculum and complete the requirements for the Bachelor of Science degree, as outlined on page 87.

Premedical Two-Year Curriculum

For students desiring to meet the minimum requirements for admission to a Class A Medical School (2 year requirement).

	Semester	
	I	II
Freshman Year		
Eng. 1fs—Survey and Composition.....	3	3
Math. 8, 9—Elements of College Mathematics.....	3	3
Zool. 2fs—Fundamentals of Zoology.....	4	4
Chem. 1fs—General Chemistry.....	4	4
Modern Language (French or German).....	3	3
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	
	1	1
	—	—
	18	18
Sophomore Year		
Phys. 1fs—General Physics.....	4	4
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory.....	2	2
Speech 1fs—Public Speaking.....	1	1
Zool. 4—Comparative Vertebrate Morphology.....	—	3
Psych. 1—Introduction to Psychology.....	3	—
Eng. 2, 3—Survey and Composition.....	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
	2	2
	—	—
	17	17

PREDENTAL

Students entering the College of Arts and Sciences who desire to prepare themselves for the study of dentistry are offered the following two-year curriculum, which meets the predental requirements of the American Association of Dental Colleges. This curriculum may also be followed by the student if he desires to continue his college training and complete work for the Bachelor of Science degree.

Predental Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
Math. 8, 9—Elements of College Mathematics.....	3	3
Chem. 1fs—General Chemistry.....	4	4
Zool. 2fs—Fundamentals of Zoology.....	4	4
Dr. 4fs—Mechanical Drawing.....	1	1
M. I. 1fs—Basic R. O. T. C. (Men)..... 1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... ½—½		
Phys. Ed. 4fs—Physical Activities (Women)..... ½—½		
	—	—
	17	17
<i>Sophomore Year</i>		
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory.....	2	2
Phys. 1fs—General Physics.....	4	4
Modern Language (French or German).....	3	3
Electives (Humanities, Social Sciences).....	4	4
M. I. 2fs—Basic R. O. T. C. (Men)..... 2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women)..... 1—1		
Phys. Ed. 8fs—Physical Activities (Women)..... 1—1		
	—	—
	17	17

GENERAL SCIENCE

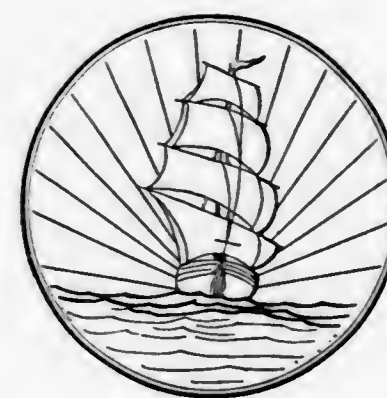
For students who desire a general basic knowledge of the physical and biological sciences without immediate specialization in any one, a general curriculum is offered. By proper selection of courses in the junior and senior year a student may concentrate his work sufficiently in any one of the fields of study to be able to continue in graduate work in that field.

A major and a minor, comprising together no fewer than 72 credits, shall be completed in the Departments included in the Divisions of Biological and Physical Sciences with at least 18 credits in the courses for advanced undergraduates and graduates in these Divisions.

General Science Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Modern Language (French or German).....	3	3
Speech 1fs—Public Speaking.....	1	1
Chem. 1fs—General Chemistry.....	4	4
Bot. 1—General Botany.....	4	—
Zool. 1—General Zoology.....	—	4
M. I. 1fs—Basic R. O. T. C. (Men)..... 1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... ½—½		
Phys. Ed. 4fs—Physical Activities (Women)..... ½—½		
	—	—
	16	16
<i>Sophomore Year</i>		
Eng. 2, 3—Survey and Composition.....	3	3
Math. 8, 9—Elements of College Mathematics.....	3	3
or		
Math. 21, 22—College Algebra and Plane Trigonometry; Analytic Geometry.....	4	4
Modern Language (French or German).....	3	3
Electives (Biological Sciences).....	3—4	3—4
Electives (Physical Sciences).....	4—3	4—3
M. I. 2fs—Basic R. O. T. C. (Men)..... 2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women)..... 1—1		
Phys. Ed. 8fs—Physical Activities (Women)..... 1—1		
	—	—
	18	18
<i>Junior Year</i>		
Phys. 1fs or 2fs—General Physics.....	4—5	4—5
Electives (Social Sciences).....	3	3
Electives (Biological Sciences).....	3	3
Electives (Physical Sciences).....	3	3
Electives.....	3	3
	—	—
	16—17	16—17
<i>Senior Year</i>		
Electives (Social Sciences).....	3	3
Electives (Biological Sciences).....	3	3
Electives (Physical Sciences).....	3	3
Electives (Biological or Physical Sciences).....	3	3
Electives.....	3	3
	—	—
	15	15

COLLEGE OF
COMMERCE



It is the interest of the commercial world that wealth should be found everywhere."

—Edmund Burke.

COLLEGE OF COMMERCE

W. MACKENZIE STEVENS, *Dean*.

The University of Maryland is in an unusually favorable location for students of economics, commerce, and business administration; for downtown Washington is only twenty-four minutes away in one direction, while the Baltimore business district is less than an hour in the other—both cities with frequent transportation services to the University gates. Special arrangements are made to study commercial, manufacturing, exporting, and importing facilities and methods in Baltimore; and every assistance is given qualified students who wish to obtain a first hand glimpse of the far-flung economic activities of the National Government or to utilize the libraries, government departments, and other facilities provided in Washington.

The College of Commerce provides professional training in economics and business administration for those who plan to become executives, teachers, or investigators in commercial, industrial, agricultural, or governmental economic enterprises.

While the curricula offered are technical and vocational, all require a thorough basic training in mathematics, statistics, English and speech. The courses required in these fields are necessary for proper analysis, explanation, and interpretation of modern economic data.

Liberal allowance in every curriculum is made for other social sciences or for purely cultural non-vocational subjects, in order that students may acquire the breadth of vision needed by a present day economist or business executive.

Subject to the group and curricula requirements described subsequently, a student may, with the advice of his faculty adviser, elect individual courses from any offered by the University in accordance with his needs.

Advisory Councils

In order to facilitate the prompt and continuous adjustment of courses, curricula, and instructional methods to provide the training most in demand by industry and commerce; and in order constantly to maintain instruction abreast of the best current practice, the advice and suggestions of business men are constantly sought and received through Advisory Councils composed of outstanding leaders in each major field of business activity. Each Council has its own particular interest to serve, such as advertising, marketing, or finance; and the viewpoint and suggestions of these business men are proving to be invaluable in developing the instructional and research program of the College.

Standards of Work

The College of Commerce was admitted to membership in the American Association of Collegiate Schools of Business in 1940. This is an organization established in 1916 to promote thorough and scientific training for the

business profession. It maintains high standards of membership based on the number and training of the faculty, the thoroughness of the work, the length and breadth of the curriculum, the number of students, the financial backing of the college, and the facilities for carrying on the work.

In addition to all general university scholarship requirements, graduates of the College of Commerce must have successfully completed all specific curriculum requirements and must have passed at least forty-eight semester hours of Commerce subjects including economics with grades of A, B, or C.

Group Requirements For Graduation

A student who has met all entrance requirements may be granted the degree of Bachelor of Science upon the satisfactory completion of not fewer than 120 semester hours, not including the six hours of basic Military Science required of all able-bodied men students, or the six hours of physical education for women and for such men as are excused from Military Science.

Of these 120 credits, not fewer than 48 must be in Commerce courses (including economics) and not fewer than 48 in other subjects; provided that courses in principles of economics may be considered to be in either category.

The following minimum requirements in each of the groups specified must be completed before graduation, except as indicated in a particular curriculum.

1. English and Speech—fourteen credits.
2. Mathematics, Statistics, and Natural Science—twelve credits—except in Secretarial Administration.
3. Military Science or Physical Education—six credits.
4. Social Sciences and Foreign Languages—not fewer than twelve hours are required in psychology, sociology, political science, or history, and considerably more than these are recommended; provided that electives in foreign languages or other humanities may be substituted for six hours of this requirement.

Electives And Extra-Curricular Activities

Business and industrial leaders now require a much broader educational background than that provided by vocational courses in economics, and business administration alone. Group requirements have been set up accordingly which demand that not fewer than 48 semester credit hours shall be from courses other than commerce; and a considerably larger number of semester hours may be elected from other subjects by a student who is willing to forego a proportionate number of specialized courses in economics and business administration.

Other social sciences, such as sociology, history, political science, and applied psychology are useful in furnishing the broad background in social

sciences needed by any commerce student; and these subjects tend to make him a more useful citizen. Logic, ethics, and other philosophy courses open up a new world of intellectual pleasure to the student; and training in abstract thinking provided by such subjects is also useful vocationally. Courses in music and art may serve as a welcome diversion from vocational courses; and the social and extra-curricular development that music facilitates is desirable for students of economics or business.

Students of business administration are urged to learn stenography, typing, and other office techniques because this multiplies their opportunities for appointment to positions in general administrative offices and facilitates their promotion to positions where their training in business administration has an opportunity to demonstrate its value.

Commerce students should diversify their non-economic selections so as to obtain the broadest possible general education within the time at their disposal. While the freedom of choice offered through electives is sufficient to enable a student to study whatever cultural subjects or vocational techniques he needs anywhere in the University, he who wishes to elect as much as a minor in any one department outside the College of Commerce must secure the approval of the head of that department to his study list, in order that the selections may be effectively adapted to the vocational or cultural objectives sought.

Extra-curricular activities are recommended to students of this college whenever the physical and mental capacity of the individual student and available time permit. Excellence in such activities often has a definite value in procuring business positions at graduation, and experience gained in this way is frequently invaluable in later life.

Additional electives above the curriculum requirements in either vocational or non-economics courses are encouraged whenever a student can demonstrate the capacity to carry additional subjects satisfactorily. Grades received in previous work will be the determining factor for decision as to extra student load in each case. Students who do not average better than C will not be permitted to carry additional courses beyond the curriculum requirements.

Student Organizations

There are three student societies in the College of Commerce that are designed to develop scholarship, professional attitudes, ability to carry responsibility, and comradeship among students of similar interests, namely: Beta Gamma Sigma, the national scholarship fraternity in the field of business, Beta Alpha Psi, the professional accounting fraternity, and the Collegiate Chamber of Commerce, a general student organization open to all students of the College.

Beta Gamma Sigma

Beta Gamma Sigma, the national scholarship fraternity in commerce and business administration recognized by the American Association of Colle-

giate Schools of Business, has established a chapter, Alpha of Maryland, at the University. Membership is limited to senior students ranking scholastically in the highest tenth of the senior class and junior students in the highest two percent of the junior class.

Beta Alpha Psi

Students whose major interest is accounting and who have a high scholastic record are eligible for invitation to membership in Beta Alpha Psi, the national professional accounting fraternity. Beta Alpha Psi sponsors a professional program of outside lecturers and study in Accountancy during the school year.

Collegiate Chamber of Commerce

The Collegiate Chamber of Commerce provides students of business administration with an organization in which they may learn to work effectively with others in conferences and committees, and through which they may be brought into close contact with business men and trade associations in the types of business in which they are most interested. The Collegiate Chamber of Commerce maintains close relations with the Junior and Senior Chambers of Commerce in the various cities of Maryland and with the United States Chamber of Commerce in Washington. It is controlled by a board of directors elected by students of the College, two from each class and one from each student organization in the College. Membership is voluntary, but all students of business are urged to take part in its activities, for much of the training obtained is as valuable as that obtained in regular courses.

While general and social meetings are held periodically, most of the activities are centered in the following committees, each of which fosters study, business contacts, association with corresponding committees in city, state, and national chambers of commerce, discussion, field trips, and advancement of students interested in each field: Marketing, Public Relations, Civic Affairs, Community Affairs, Finance, Foreign Trade, Agricultural Affairs, and Industrial Affairs. A member of the faculty who is qualified in the special field in which a given committee is working serves as adviser. Additional committees are formed whenever a sufficient number of students desire them.

Class of 1926 Award

The Class of 1926 of the School of Business Administration of the University of Maryland at Baltimore offers each year a gold key to the senior graduating from the College of Commerce with the highest average for the entire four-year course taken at the University of Maryland.

Student Advisers

Each student in the College of Commerce is assigned to a faculty adviser who, so far as practicable, is a specialist in the student's field of interest. A student who plans to become an accountant, for instance, has a professor

of accounting as his adviser; one who is interested in banking as a career, a professor of finance; and those interested in marketing, advertising, foreign trade, industrial management, agricultural economics, and other subjects, specialists in these fields. Students are expected to see their advisers regularly about registration, curricular requirements, scholarship requirements, and such personal or university matters as may be desirable.

Fields of Special Study

By a proper selection of courses, organized programs of study or curricula are available as follows:

- General Business Management including
 - Industrial Management
 - Business Statistics
 - Industry, Trade, and Transportation
- Accounting including C. P. A. Concentration
- Finance
- Marketing including
 - Sales Management
 - Retail Merchandising
- Cooperative Administration, Marketing, and Economics
- Secretarial Administration
- Economics and Agricultural Economics
- Combined Program in Commerce and Law

If a student plans to take the Combination Commerce-Law, the Retail Merchandising, the Agricultural Economics, or the Secretarial Administration curriculum, he may register in the curriculum of his choice in the Freshman or Sophomore year. Otherwise, he should register for the General Business Curriculum immediately following and then decide at the beginning of the Junior year the extent to which he wishes to specialize.

General Business Curriculum

Freshman Year	Semester	
	I	II
Eng. 1fs—Survey and Composition.....	3	3
Math. 5, 6—General Mathematics.....	3	3
Bus. 4—Development of Commerce and Industry.....	3	—
Bus. 5—Business Organization.....	—	3
Speech 1fs—Public Speaking.....	1	1
Foreign Language, Political Science or other social science, Mechanical Drawing, or elective.....	3	3
Science—(preferably Chemistry or Physics).....	3-4	3-4
M. I. 1fs—Basic R. O. T. C. (Men).....	1-1	—
Phys. Ed. 2fs—Personal Hygiene (Women).....	1/2-1/2	1
Phys. Ed. 4fs—Physical Activities (Women).....	1/2-1/2	1
	—	—
	17-18	17-18

Sophomore Year	Semester	
	I	II
Eng. 4—Expository Writing.....	2	—
Eng. 6—Business English.....	—	2
Stat. 15fs—Business Statistics.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
Acct. 31fs—Principles of Accounting.....	4	4
Fin. 43—Money and Banking.....	—	3
Psychology, Sociology, Government, Philosophy, or other elec- tive	3	—
M. I. 2fs—Basic R. O. T. C. (Men).....	2-2	—
Phys. Ed. 6fs—Community Hygiene (Women).....	1-1	2
Phys. Ed. 8fs—Physical Activities (Women).....	1-1	—
	—	—
	17	17

Suggested Elective Courses:

- Government: Pol. Sci. 1—American National Government—3. Pol. Sci. 4—State and Local Government—3. Pol. Sci. 7, 8—Comparative Government—2, 2.
- History: H. 1fs—A Survey of Western Civilization—6. H. 5, 6—American History—3, 3. H. 3fs—History of England and Great Britain—6.
- Sociology: Soc. 3—Introduction to Sociology—3. Soc. 1—Contemporary Social Problems—3. Soc. 5—Comparative Sociology—3.
- Psychology: Psych. 4—Psychology for Students of Commerce—3. Psych. 1—Introduction to Psychology—3. Psych. 2-3—Applied Psychology—3-3.
- Philosophy: Phil. 1—Fundamentals of Philosophy—3. Phil. 2—Ethics—3.
- Speech 4fs—Advanced Public Speaking—4.
- L. S. 2—Sources of Business Information—1.
- English: Eng. 7, 8—Survey of American Literature—3, 3. Eng. 5—Expository Writing, continued—2. Eng. 14—College Grammar—3.
- Science: Introductory courses in Chemistry, Chem. 3fs; Geology, Geol. 1; Physics, Phys. 3fs; or Zoology, Zool. 3; and General Botany, Bot. 1.
- Language: French, German, Spanish, or Italian—6.
- Classics: Classics 3, 4—Latin and Greek in Current English Usage—2, 2.
- Drawing: Dr. 4fs—Mechanical Drawing—2.
- Secretarial Administration: Sec. 1fs—Elementary Office Techniques—2, 2. Sec. 3fs—Intermediate Office Techniques—3, 3.

General Business Management Curriculum

	Semester	
	I	II
<i>Junior Year</i>		
Fin. 111—Corporation Finance.....	3	—
Mkt. 101—Principles of Marketing.....	3	—
Bus. 137—Industrial Management.....	—	3
Bus. 164, 165—Business Law.....	3	3
Economics electives	3	3
Electives (See suggested concentrations following).....	3	6
	15	15
<i>Senior Year</i>		
Fin. 199—Financial Analysis and Control.....	—	3
Electives (See suggested concentrations following).....	15	12
	15	15

CONCENTRATION IN INDUSTRIAL MANAGEMENT

Students interested in the management aspects of industry and business may specialize in the field of industrial administration by taking the following courses: Bus. 137—Industrial Management; Bus. 130—Labor Economics; Bus. 131—Labor and Government; Acct. 121—Cost Accounting; Acct. 122—Advanced Cost Accounting; Bus. 133—Industrial Relations; Bus. 138—Personal Management; Psych. 162—Advanced Personnel Psychology; and Bus. 141—World Resources and Industries.

CONCENTRATION IN BUSINESS STATISTICS

Students interested in applied business and economic statistics beyond the year of study provided in Statistics 15fs, should take Statistics 117, 118, Advanced Business Statistics and Bus. 168, Business Cycles and Indexes, in the junior year.

The student's advisor and the Dean should be consulted on the program of courses in mathematical statistics and mathematics. Mathematics 8, 9, 21, 22 and 23fs are desirable courses if professional competence is the objective in the general field of statistics.

CONCENTRATION IN INDUSTRY, TRADE AND TRANSPORTATION

For students wishing to concentrate in this field, it is recommended that a substantial number of the following courses be taken: Bus. 102—International Trade; Fin. 129—International Finance; Mkt. 122—Export and Import Trade Procedure; Bus. 92—Supervised Practice in Transportation; Bus. 94—Supervised Practice in Foreign Trade; Mkt. 106—Salesmanship; Mkt. 108—Salesmanagement; Pol. Sci. 102—International Law; Pol. Sci. 51—International Relations; Bus. 112—Principles of Transportation; Bus. 137—Industrial Management; and Bus. 141—World Resources and Industries. It is strongly recommended that students interested in foreign trade equip themselves adequately with a knowledge of Spanish and/or French.

Accounting Curriculum

	Semester	
	I	II
<i>Junior Year</i>		
Acct. 101, 102—Advanced Accounting.....	3	3
Acct. 121—Cost Accounting.....	2	—
Acct. 122—Advanced Cost Accounting.....	—	2
Bus. 164, 165—Business Law.....	3	3
Speech 4fs—Advanced Public Speaking.....	2	2
*Electives	5	5
	15	15
<i>Senior Year</i>		
Fin. 111—Corporation Finance.....	3	—
Acct. 171, 172—Auditing Theory and Practice.....	2	2
Acct. 181, 182—Specialized Accounting	3	3
Fin. 199—Financial Analysis and Control.....	—	3
*Electives	7	7
	15	15

C. P. A. CONCENTRATION

Students interested in public accounting should elect Acct. 186—C. P. A. Problems; Acct. 161—Income Tax Procedure; Bus. 166—Advanced Business Law; Acct. 91—Accounting Apprenticeship; and Econ. 190—Advanced Economic Principles.

Finance Curriculum

	Semester	
	I	II
<i>Junior Year</i>		
Fin. 111—Corporation Finance.....	3	—
Acct. 101, 102—Advanced Accounting.....	3	3
Fin. 121—Advanced Banking Principles and Practices.....	—	3
Bus. 164, 165—Business Law.....	3	3
Speech 4fs—Advanced Public Speaking.....	2	—
Electives (See suggested courses below).....	4	6
	15	15
<i>Senior Year</i>		
Fin. 115—Investments	3	—
Fin. 199—Financial Analysis and Control.....	—	3
Electives (See suggested courses below).....	12	12
	15	15

*For additional suggestions for business administration and economics courses see course descriptions.

Suggested Elective Courses:

- A. E. 101—Land Economics—3.
 A. E. 104—Farm Finance—3.
 Econ. 145—Public Utilities—3.
 Econ. 161—Fundamentals of Cooperative Enterprise—3.
 Econ. 152—Social Control of Business—3.
 Fin. 93—Supervised Practice in Finance—2.
 Fin. 105—Consumer Financing—3.
 Fin. 106—Public Finance—3.
 Fin. 116—Investment Banking—3.
 Fin. 118—Stock and Commodity Exchanges—3.
 Fin. 125—Credits and Collections—3.
 Fin. 129—International Finance—3.
 Fin. 143—Property, Casualty and Liability Insurance—3.
 Fin. 144—Life, Group and Social Insurance—3.
 Fin. 151—Real Estate—3.

MARKETING, SALES MANAGEMENT, AND MERCHANDISING

Two specialized programs of study are available for students of marketing, of which the first is primarily intended for students interested in sales management and the second for men and women who wish to go into the garment trade, department store work, or other types of retail or wholesale distribution. The second involves certain changes in the basic lower division curriculum in order to provide for technical courses needed.

Marketing Curriculum

	<i>Semester</i>	
	<i>I</i>	<i>II</i>
<i>Junior Year</i>		
Fin. 111—Corporation Finance	3	—
Mkt. 101—Principles of Marketing	3	—
Mkt. 106—Salesmanship	—	2
Bus. 164, 165—Business Law	3	3
Speech 4fs—Advanced Public Speaking	2	2
Electives (See suggested courses below)	4	8
	15	15
<i>Senior Year</i>		
Mkt. 109—Principles of Advertising	3	—
Mkt. 199—Marketing Research	—	3
Fin. 199—Financial Analysis and Control	—	3
Mkt. 108—Salesmanagement	2	—
Electives (See suggested courses below)	10	9
	15	15

NOTE: For a description of Business Administration and Economics courses.

CONCENTRATION IN SALES MANAGEMENT

The following are some of the additional courses recommended for those students who wish special training in Sales Management: Mkt. 106—Salesmanship; Mkt. 108—Sales Management; Fin. 125—Credits and Collections; Mkt. 136—Economics of Consumption; Bus. 141—World Resources and Industries; Bus. 112—Principles of Transportation; Mkt. 115—Purchasing Technique; and Mkt. 91—Supervised Practice in Marketing.

PROGRAM IN RETAIL MERCHANDISING

This program is planned to appeal to those students of business and administration who are interested particularly in department store and specialty store positions such as Buyer, Advertising Manager, Merchandise Manager, Superintendent, Credit Manager, Comptroller, or other retail store functions where specialized training in retail storage management is required. This concentration should appeal to both men and women who are interested in making retail merchandising their vocation.

This program can be entered in the junior year, but it is recommended that students register their choice earlier in their college courses whenever practicable.

Retail Merchandising Curriculum

	<i>Semester</i>	
	<i>I</i>	<i>II</i>
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition	3	3
Math. 5, 6—General Mathematics, or Modern Language	3	3
Bus. 5—Business Organization	3	—
Bus. 4—Development of Commerce and Industry	—	3
Speech 1fs—Public Speaking	1	1
Chem. 1fs—General Chemistry or Social Science	3-4	3-4
H. E. 15—Textiles	3	—
H. E. 21—Design	—	3
M. I. 1fs—Basic R. O. T. C. (Men)	1-1	1
Phys. Ed. 2fs—Personal Hygiene (Women)	½—½	
Phys. Ed. 4fs—Physical Activities (Women)	½—½	
	17-18	17-18

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 4—Expository Writing	2	—
Eng. 6—Business English	—	2
Stat. 15fs—Business Statistics	3	3
Econ. 31, 32—Principles of Economics	3	3
Acct. 31fs—Principles of Accounting	4	4
Fin. 43—Money and Banking	—	3
H. E. 24—Costume Design or an elective	3	—
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	17	17
<i>Junior Year</i>		
Fin. 111—Corporation Finance	3	—
Mkt. 101—Principles of Marketing	3	—
Mkt. 109—Principles of Advertising	3	—
Mkt. 106—Salesmanship	—	2
Bus. 164, 165—Business Law	3	3
H. E. 121, 122—Interior Design or electives	3	3
H. E. 125—Merchandise Display	—	2
H. E. 25—Crafts or elective	—	5
	—	—
	15	15
<i>Senior Year</i>		
Mkt. 199—Marketing Research	—	3
Fin. 199—Financial Analysis and Control	—	3
Fin. 125—Credits and Collections	3	—
Mkt. 119—Retail Store Management and Merchandising	—	3
Mkt. 115—Purchasing	—	3
H. E. 123, 124—Advanced Interior Design	2	2
H. E. 172—Problems in Textiles	3	—
Mkt. 91—Supervised Practice in Marketing	2	—
Econ. 161—Fundamentals of Cooperative Enterprise	3	—
H. E. 171—Advanced Textiles	3	—
	—	—
	16	14

PROGRAM IN COOPERATIVE ADMINISTRATION

The program in cooperative administration is designed to meet the needs of the following classes of students: (1) Students who aspire to executive positions in cooperative organizations; (2) Students who plan careers in governmental agencies that handle cooperative problems; (3) Students

whose major interest may be in other fields, but who wish to study the contrasting methods and objectives of corporate, public, and cooperative enterprise.

Cooperative organizations are playing an increasingly important role in our free enterprise system. They provide a democratic way for individuals voluntarily to improve their own situations, both economic and social. Much of the appropriate training for engaging in or understanding cooperative enterprise is the same as that needed for private business. The form of ownership, the method of procedure, and the objectives of cooperative enterprise, however, are sufficiently different from those of corporate enterprise to call for a special program.

The University of Maryland offers unusual opportunities for the study of all types of cooperative enterprise. In addition to the opportunities on the campus itself, several important cooperative organizations are located nearby, and the governmental agencies and libraries of Washington are only twenty minutes away.

Since every student interested in cooperatives should have the basic training provided in the Lower Division Business Administration curriculum, it is not necessary to make a definite decision until the beginning of the junior year. Students are urged, however, to consult with their adviser concerning electives to be taken during the first two years in order to obtain the most suitable background. Provision has been made for transfer students with two-year college standing to complete the program in the junior and senior years. Graduates of other universities and colleges can attain a master's degree in the field in one or two years depending on their previous background and training.

The student interested in this program may take the cooperative courses as electives regardless of the college of the University or curriculum in the College of Commerce in which he is registered, or he may register for the Business Management curriculum with cooperatives as his field of concentration. The several aspects of cooperative enterprise require course schedules fitted to the particular needs and interests of the student and are worked out in consultation with his adviser. Class-room work and trips are needed for well-rounded training but cannot take the place of actual experience. Consequently, students who plan to make a career in cooperatives should arrange for practical work with a cooperative as early as possible. Students intending to work with agricultural cooperatives, should have considerable farm experience. The course entitled "Supervised Practice in Cooperation," involves actual experience and should preferably be taken during the summer between the junior and senior years.

CONCENTRATION IN COOPERATIVE ECONOMICS

Students specializing in the field of cooperative economics are advised to take the following courses: Bus. 161—Fundamentals of Cooperative Enterprise; Bus. 163—Economics of Cooperatives; Fin. 105—Consumer

Financing; Mkt. 136—Economics of Consumption; A. E. 103—Cooperation in Agriculture; and Econ. 151—Comparative Economic Systems. It is also highly desirable for students in this field to take several accounting courses.

CONCENTRATION IN COOPERATIVE MARKETING

The following are some of the additional courses recommended for those students who wish special training in Cooperative Marketing: Mkt. 101—Principles of Marketing; Mkt. 108—Sales Management; Mkt. 109—Principles of Advertising; Mkt. 104—Salesmanship; Fin. 125—Credits and Collections; Mkt. 91—Supervised Practice in Marketing; Bus. 161—Fundamentals of Cooperative Enterprise; Bus. 163—Economics of Cooperatives; A. E. 103—Cooperation in Agriculture; Mkt. 136—Economics of Consumption; and Bus. 91—Supervised Practice in Cooperation.

SECRETARIAL ADMINISTRATION

The combination of a thorough training in secretarial work with a well-rounded knowledge of business administration is much sought by prospective employers of both men and women. The graduate of a college of commerce with this training frequently has unusually promising chances of rapid promotion because of the practical knowledge of administration gained in assisting an important administrator and the opportunities available to know at first hand the leading executives of the organization with which he is associated.

These opportunities are available only to men and women of high capacity, however, (1) because important executives will not allow themselves to be served by mediocre assistants or secretaries, and (2) because mediocre persons do not obtain from superiors the confidence necessary to encourage the delegation of important responsibilities.

For this reason, only students who have demonstrated high scholarship in their high school or previous college work will be permitted to enroll in this curriculum.

Secretarial Administration Curriculum

	Semester	
<i>Freshman Year</i>	<i>I</i>	<i>II</i>
Eng. 1fs—Survey and Composition.....	3	3
Bus. 5—Business Organization.....	—	3
Bus. 4—Development of Commerce and Industry.....	3	—
Sec. 1fs—Elementary Office Techniques.....	2	2
Math. 5, 6—General Mathematics or Social Sciences.....	3	3
Speech 1fs—Public Speaking.....	1	1
Elective	3	3
M. I. 1fs—Basic R. O. T. C. (Men)..... 1—1	1	1
Phys. Ed. 2fs—Personal Hygiene (Women)..... ½—½		
Phys. Ed. 4fs—Physical Activities (Women)..... ½—½		
	16	16

	Semester	
	<i>I</i>	<i>II</i>
<i>Sophomore Year</i>		
Eng. 4—Expository Writing.....	2	—
Eng. 6—Business English.....	—	2
Stat. 15fs—Business Statistics, or electives.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
Acct. 31fs—Principles of Accounting.....	4	4
Sec. 3fs—Intermediate Office Techniques.....	3	3
M. I. 2fs—Basic R. O. T. C. (Men)..... 2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women)..... 1—1		
Phys. Ed. 8fs—Physical Activities (Women)..... 1—1		
	17	17
<i>Junior Year</i>		
L. S. 2—Sources of Business Information.....	—	1
Fin. 43—Money and Banking.....	—	3
Mkt. 101—Principles of Marketing.....	3	—
Bus. 164, 165—Business Law.....	3	3
Sec. 5fs—Secretarial Work.....	3	3
*Electives	6	5
	15	15
<i>Senior Year</i>		
Fin. 111—Corporation Finance.....	3	—
Mkt. 136—Economics of Consumption or elective.....	—	3
Sec. 117—Office Procedure and Equipment.....	3	—
Sec. 119—Office Supervision and Management.....	—	3
Bus. 138—Personnel Management.....	3	—
*Electives	6	9
	15	15

ECONOMICS

A student who wishes to specialize in the field of economics in the College of Commerce may elect either (a) General Economics, or (b) Agricultural Economics.

CONCENTRATION IN GENERAL ECONOMICS

Students with a special interest in economic theory and in the general field of economics are advised to meet the requirements of the General Business Management Curriculum and take the following courses: Econ. 190—Advanced Economic Principles; Econ. 130—Labor Economics; Econ. 136—Economics of Consumption; Econ. 145—Public Utilities; Econ. 151—Comparative Economic Systems; Econ. 191—Contemporary Economic Thought; Econ. 152—Social Control of Business; etc.

Other courses suggested for consideration are shown in the list of courses under the heading of "Economics."

*Electives as convenient provided that the total credit hours obtained during the four years shall not be less than 126, and that group requirements for graduation are completed. Fourteen hours of speech and English are required with grades of A, B, or C.

Agricultural Economics Curriculum*

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Math. 5, 6—General Mathematics.....	3	3
A. E. 1—Agricultural Industry and Resources.....	—	3
Bus. 4—Development of Commerce and Industry.....	3	—
Biology or Foreign Language.....	3-4	3-4
Chem. 1fs or 3fs—General or Introductory Chemistry.....	4-3	4-3
M. I. 1fs—Basic R. O. T. C. (Men).....	1-1	1
Phys. Ed. 2fs—Personal Hygiene (Women).....	1/2-1/2	
Phys. Ed. 4fs—Physical Activities (Women).....	1/2-1/2	
	—	—
	17-18	17-18
<i>Sophomore Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
Speech 1fs—Public Speaking.....	1	1
Stat. 15fs—Business Statistics.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
Fin. 43—Money and Banking.....	—	3
Acct. 31fs—Principles of Accounting.....	4	4
M. I. 2fs—Basic R. O. T. C. (Men).....	2-2	2
Phys. Ed. 6fs—Community Hygiene (Women).....	1-1	
Phys. Ed. 8fs—Physical Activities (Women).....	1-1	
Agriculture Elective	2-3	—
	—	—
	17-18	17-18
<i>Junior Year</i>		
A. E. 100—Farm Economics.....	3	—
A. E. 102—Marketing of Farm Products.....	—	3
Bus. 164, 165—Business Law.....	3	3
Econ. 161—Fundamentals of Cooperative Enterprise.....	3	—
†A. E. 104—Farm Finance	—	3
A. E. 106—Prices of Farm Products.....	—	3
†Electives	7	4
	—	—
	16	16

*Students registered in this curriculum should satisfy the Professor of Agricultural Economics that they have had adequate farm experience before entering the junior year.

†Two hours of speech elective must be taken during the sophomore, junior or senior years. A. E. 104 may be postponed until the senior year if this will facilitate the selection of useful electives during the last two years.

	Semester	
	I	II
<i>Senior Year</i>		
A. E. 103—Cooperation in Agriculture.....	3	—
Fin. 111—Corporation Finance.....	3	—
A. E. 109, 110—Research Problems.....	1	1
Econ. 136—Economics of Consumption.....	—	3
Soc. 103—Rural Sociology.....	—	3
Electives	9	9
	—	—
	16	16

COMBINED PROGRAM IN COMMERCE AND LAW

Students who wish to combine commercial and legal studies to obtain both Bachelor of Science and Bachelor of Laws degrees may do so by selecting their courses in such a way as to comply with all of the group and specific requirements of the College of Commerce in six semesters, and then completing the 126 hours required for graduation from this college by courses taken in the University of Maryland School of Law at Baltimore.

During the first three years, students will be registered in the College of Commerce. In the fourth year and thereafter, unless the four-year alternative program is taken, they will be registered in the School of Law; but they must forward copies of their study lists to the office of the Dean of the College of Commerce at the beginning of each semester of the fourth year. At the end of the fourth year, the degree of Bachelor of Science may be awarded in the College of Commerce upon the recommendation of the Dean of the Law School. The degree of Bachelor of Laws will be awarded upon satisfactory completion of the entire program.

Commerce-Law Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Eng. 1fs—Survey and Composition.....	3	3
Math. 20fs—General Mathematics.....	3	3
Bus. 5—Business Organization.....	—	3
Bus. 4—Development of Commerce and Industry.....	3	—
Speech 1fs—Public Speaking.....	1	1
Pol. Sci. 1—American National Government.....	3	—
Pol. Sci. 4—State and Local Government.....	—	3
H. 3fs—History of England and Great Britain.....	3	3
M. I. 1fs—Basic R. O. T. C. (Men).....	1-1	1
Phys. Ed. 2fs—Personal Hygiene (Women).....	1/2-1/2	
Phys. Ed. 4fs—Physical Activities (Women).....	1/2-1/2	
	—	—
	17	17

	Semester	
	I	II
<i>Sophomore Year</i>		
Eng. 4—Expository Writing.....	2	—
Econ. 31, 32—Principles of Economics.....	3	3
Acct. 31fs—Principles of Accounting.....	4	4
Stat. 15fs—Business Statistics.....	3	3
Fin. 43—Money and Banking.....	—	3
Speech 4fs—Advanced Public Speaking.....	2	2
Pol. Sci. 7—Comparative Government.....	2	—
M. I. 2fs—Basic R. O. T. C. (Men).....2—2	2	2
Phys. Ed. 6fs—Community Hygiene (Women).....1—1		
Phys. Ed. 8fs—Physical Activities (Women).....1—1		
	—	—
	18	17
<i>Junior Year</i>		
Fin. 111—Corporation Finance	3	—
*Fin. 199—Financial Analysis and Control.....	—	3
Mkt. 101—Principles of Marketing.....	3	—
Acct. 101, 102—Advanced Accounting or Econ. Electives.....	3	3
Speech 9fs—Debate	2	2
Eng. 6—Business English.....	—	2
Fin. 106—Public Finance.....	—	3
*Econ. 152—Social Control of Business.....	3	—
Econ. 145—Public Utilities	3	—
Electives	—	2
	—	—
	17	15
<i>†Senior Year</i>		
*Fin. 199—Financial Analysis and Control.....	—	3
*Econ. 152—Social Control of Business.....	3	—
Electives (A student may concentrate on Econ. or Acct. in the senior year)	12	12
	—	—
	15	15

SPECIAL CURRICULA OR CONCENTRATIONS

Organized programs of study in fields not covered by the foregoing ones will be developed whenever the needs of business and industry or the demands of students for training in other branches of business administration or economics warrant it.

*To be taken in senior year if the four-year curriculum is followed.

†The first year of regular Law School may be substituted for the fourth year in Commerce.

COLLEGE OF EDUCATION



*“What the best and wisest
parent wants for his own child,
that must the community want
for all its children.”*

—John Dewey.

COLLEGE OF EDUCATION

HAROLD BENJAMIN, *Dean*.ALMA FROTHINGHAM, *Secretary to Dean*.

The College of Education meets the needs of the following classes of students: (1) undergraduates preparing to teach in high schools, preparatory schools, and vocational schools; (2) students who will enter higher institutions to prepare for work in specialized educational and institutional fields; (3) students preparing for educational work in the trades and industries; (4) students preparing to become home demonstrators, club or community recreation leaders, and (in cooperation with the Department of Sociology) social workers; (5) students whose major interest is in other fields, but who desire courses in education; (6) graduate students preparing for teaching positions requiring an advanced degree and for positions as high school principals, elementary school principals, educational supervisors, attendance officers, school administrators, counselors, and other positions.

Facilities

In addition to the general facilities offered by the University, certain important supplementary facilities are available.

Supervised Teaching. Opportunity for supervised teaching under competent critic teachers is provided by arrangement with the school authorities of Prince Georges, Howard, and Montgomery Counties, the District of Columbia, and Baltimore.

Observation. Observation of teaching is conducted in Washington and in nearby Maryland schools. The number, variety, and nearness of these schools provide ample and unusual opportunities for observation of actual classroom situations.

Other Facilities in Washington. The Library of Congress, the Library of the U. S. Office of Education, and special libraries of other Government offices are accessible. The information services of the National Education Association, American Council on Education, U. S. Office of Education, and other institutions, public and private, are available to students.

Requirements for Admission

The requirements for admission to the College of Education are in general the same as for the other colleges of the University.

Candidates for admission whose high school records are consistently low are strongly advised not to seek admission to the College of Education.

Guidance in Registration

At the time of matriculation each student is tentatively assigned to a member of the faculty who acts as the student's personal adviser. The choice of subject areas within which the student will prepare to teach and the selection of his professional courses will be made under faculty guid-

ance during the first year in the Introduction to Education course, required of all freshmen. Students from other colleges in the university who plan to take an education curriculum should also take this course. However, the course is open to sophomores who transfer to the College of Education from other colleges within the university or from other institutions. Although in particularly fortunate cases, it is possible to make satisfactory adjustments as late as the junior year for students from other colleges who have not already entered upon the sequence of professional courses, it is desirable that this work in the College of Education be begun in the freshman year. *It is practically impossible to make the necessary adjustments for students of advanced upper class standing on account of the sequence of preprofessional and professional subjects.*

It is advisable for students who purpose to teach (except Vocational Agriculture) to register in the College of Education, in order that they may have continuously the counsel and guidance of the faculty which is directly responsible for their professional preparation. It is permissible, however, for a student to register in that college which in conjunction with the College of Education offers the majority of the courses he will pursue in satisfying the requirements of the curriculum he elects. Such students, however, must meet all the requirements of the College of Education.

Preprofessional and Professional Courses

The courses required of all students who elect an education curriculum, are classified into two categories (1) preprofessional and (2) professional. The professional courses are all recognized for certification purposes by the Maryland State Department of Education, provided they are taken in the junior and senior years.

Preprofessional courses: Introduction to Education; Educational Forum, Voice and Diction.

Professional courses: Educational Psychology; Educational Sociology; The High School or The Junior High School; Curriculum, Instruction, and Observation (in field of teaching major); Educational Measurements; Methods and Practice of Teaching.

Recommendations Beyond Bare Required Minimum. Students who wish to enrich their professional preparation will do well to take the Curriculum, Instruction, and Observation course in their minor as well as their major teaching field, and to elect 6 instead of 3 units in Methods and Practice of Teaching. The first-level offering in guidance and the course in Visual Education are also centered around the day-by-day demands made upon the classroom teacher. Many students, and particularly those who plan to do graduate work in Education, may wish to strengthen their grasp of the foundations of education through second-level courses in Educational Psychology and Educational Sociology, or to deepen their insights by taking courses in History of Education or Comparative Education.

Eligibility. To be eligible to enter the professional courses, a student must have attained junior status as defined below. Continuance in such courses will be contingent upon the student's remaining in the upper four-fifths of his class in subsequent semester revisions of class standing.

Admission of Teacher College Graduates

Graduates of the two- and three-year curricula of Maryland State Teachers Colleges and other accredited teacher-education institutions whose records give evidence of the ability and character essential to teaching will be admitted to advanced standing and classified provisionally in appropriate classes. Graduates of the two-year teacher-training curriculum, in most cases, may satisfy the requirements for the degree of Bachelor of Science in Elementary Education by attendance for two full college years; graduates of the three-year curriculum, by attendance for one full college year.

Those who wish to satisfy the requirements for certification as high school teachers need more time. The amount of time required is not uniform, but depends upon the high school subjects to be taught and the individual ability of the student.

Education Courses in Baltimore

The majority of the professional courses and some of the arts and science courses required for undergraduate preparation in Education are offered in Baltimore in late afternoon and evening courses primarily for employed people. On a part time basis a student may complete some or all of his work for a B. A. or B. S. degree in Education in the Baltimore Division of the College of Education. Through special arrangement with the Graduate School, graduate courses are also available for students working on master's and doctor's degrees in education.

A separate announcement of these courses is issued in the spring of each year. This announcement may be obtained from: College of Education, University of Maryland, Lombard and Greene Sts., Baltimore, Md.

Junior Status

The first two years of college work are preparatory to the professional work of the junior and senior years. Students who, in the first two years, by reason of temperament, health, industry, and scholastic progress, give promise of becoming successful teachers are encouraged to continue in the curricula of the College of Education; those who are unlikely to succeed as teachers by reason of health deficiencies, of weakness in oral and written English, of unfavorable personal traits, or of scholastic deficiency, are advised to transfer to other fields. Data bearing on all these aspects of the student's personality are secured through the selective admissions testing program administered in connection with the Introduction to Education course, through the cooperation of the Department of Speech, and through direct observation by the faculty. *Special attention is called to the required*

course in (Speech 2) Voice and Diction which must be taken in either the freshman or sophomore year.

To be eligible for junior status a student must have completed 64 semester hours of freshman-sophomore courses with an average grade of C or better.

Student Teaching

Two courses are offered in student teaching—Ed. 139, Ed. 140—Methods and Practice of Teaching, carrying respectively 3 and 6 semester hours of credit.

Certification of Secondary School Teachers

The State Department of Education certifies to teach in the approved high schools of the State only graduates of approved colleges who have satisfactorily fulfilled subject-matter and professional requirements. Specifically it limits certification to graduates who "rank academically in the upper four-fifths of the class and who make a grade of C or better in practice teaching."

From the offerings of Education, the District of Columbia requirement of 24 semester hours of professional courses may be fully met.

Degrees

The degrees conferred upon students who have met the conditions prescribed for a degree in the College of Education are Bachelor of Arts and Bachelor of Science. Upon completion of a minimum of 128 credits in conformity with the requirements specified under "Curricula" and in conformity with general requirements of the University, the appropriate degree will be conferred.

Curricula

The curricula of the College of Education, described in detail in the following pages, are designed to prepare high school teachers of the academic and scientific subjects, the special subjects, and the vocational subjects under the provisions of the Federal Vocational Education Acts.

The specifications for majors and minors, under "Arts and Sciences Education," satisfy the requirements of the State Department of Education in regard to "the number of college credits required in any two or more subjects which are to be placed on a high school teacher's certificate." The curricula for the special subjects cover all State Department requirements. The curricula for the vocational subjects meet the objectives set up in the Federal Acts and in the interpretations of the Office of Education and of the State Board of Education.

In the Arts and Sciences Education curriculum one may qualify for the degree of either Bachelor of Arts or Bachelor of Science, depending upon the major subject. All of the other curricula lead to the degree of Bachelor of Science.

Curriculum in Agricultural Education

See College of Agriculture.

The general and special requirements of the several curricula are as follows:

ARTS AND SCIENCES EDUCATION

General Requirements

In addition to Military Science or Physical Education, required of all students in the University, the following requirements must be fulfilled by all candidates for degrees in this curriculum, normally by the end of the sophomore year:

(1) Eng. 1fs—Survey and Composition I and Eng. 2, 3—Survey and Composition II, 12 semester hours.

(2) Two years of foreign language are required of candidates for the Bachelor of Arts degree if the student enters with less than three years of foreign language; one year, if he enters with three years. No foreign language is required of any student who enters with four or more years of foreign language nor of candidates for the bachelor of science degree. The term "foreign language" is interpreted to include both ancient and modern languages.

(3) Twelve semester hours of the social sciences (history, economics, sociology, political science).

(4) Twelve semester hours of natural science or of natural science and mathematics.

(5) Twenty semester hours of education.

The program of each student shall include all of the general requirements listed above, and all requirements for his major and minor, stated below.

Arts and Science Education Curriculum

Freshman Year	Semester	
	I	II
Ed. 2—Introduction to Education.....	2	or 2
Eng. 1fs—Survey and Composition.....	3	3
*Speech 2—Voice and Diction.....	—	3
M. I. 1fs—Basic R. O. T. C. (Men).....	1—1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	½—½	
Phys. Ed. 4fs—Physical Activities (Women).....	½—½	
General Requirements (as indicated under 2, 3, and 4 above).....	6—7	6—7
Major and minor requirements and electives.....	3—5	2
	15—17	15—18

*Students who take Ed. 2 in the second semester should take Speech 2 in the first semester of the sophomore year.

Sophomore Year	Semester	
	I	II
Ed. 3—Educational Forum.....	1	or 1
Eng. 2, 3—Survey and Composition.....	3	3
M. I. 2fs—Basic R. O. T. C. (Men).....	2—2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1—1	
Phys. Ed. 8fs—Physical Activities (Women).....	1—1	
General Requirements (as indicated above).....	5—7	5—7
Major and minor requirements and electives.....	4—5	4—5
	15—17	15—17

Junior Year

Psych. 55—Educational Psychology.....	3	—
Ed. 112—Educational Sociology—Introductory	2	—
Ed. 103—Theory of the Senior High School.....	—	2
or		
Ed. 110—The Junior High School.....	—	2
Ed. 120; 122; 124; 126; or 128—Curriculum, Instruction, and Observation	—	3
General Requirements, major and minor requirements, and electives	10—12	10—12
	15—17	15—17

Senior Year

Ed. 105—Educational Measurements	2	—
Ed. 139 or Ed. 140—Methods and Practice of Teaching.....	3—6	3—6
Major and minor requirements and electives.....	10—12	12—14
	15—17	15—17

Specific Requirements

Each student is expected to prepare for the teaching of at least two high school subjects in accordance with the certification requirements of the State Department of Education (By-law 30 revised). These are designated as major and minor subjects, with a requirement of from 28 to 40 semester hours of credit for a major and from 20 to 30 semester hours for a minor. If it is deemed advisable for a student to prepare for the teaching of three high school subjects, the requirement for a major may be modified at the discretion of the faculty of the College of Education to permit the pursuit of three subjects to the extent required for State certification. Semester hour requirements are detailed below.

No student will be permitted to do practice teaching until he has met all previous requirements.

English. (For the degree of bachelor of arts.) A major in English requires 36 semester hours as follows:

Survey and Composition.....	12 semester hours
Survey of American Literature.....	6 semester hours
Electives	18 semester hours

A minor in English requires 26 semester hours. It includes the 18 hours prescribed for the major and 8 hours of electives.

Electives must be chosen with the approval of the adviser who will guide the student in terms of College of Education records and recommendations of the English department.

Sixteen of the 36 hours required for a major must be in courses numbered one hundred or above.

Social Sciences. (For the degree of bachelor of arts.) For a major in this group, 36 semester hours are required, of which at least 18 hours must be in history including 6 hours in American history and 6 hours in European history. Six of the 18 hours must be in advanced courses. For a minor in the group, 24 hours are required, of which 18 are the same as specified above, and 6 of which must be in advanced courses.

History	18 semester hours
Economics or Sociology.....	6 semester hours
Electives	12 semester hours

For a minor, the requirements are the same less the electives.

Required courses in History are as follows: A Survey of Western Civilization; American History.

Modern Languages. All students whose major is in Modern Languages are required to take Comp. Lit. 101—Introductory Survey of Comparative Literature, and they are strongly advised to take the review course (Fr. 99, Ger. 99, Span. 99). The following courses are recommended: H. 1fs—Survey of Western Civilization; Phil. 1—Fundamentals of Philosophy; Comp. Lit. 104—The Old Testament as Literature; Eng. 113, 114—Prose and Poetry of the Romantic Age; Comp. Lit. 105, 106—Romanticism in France and Germany. For a major in German, Eng. 105, 106—Old English and Eng. 103. Beowulf.

Specific requirements for the major in the different languages are as follows: French—Fr. 59fs, Fr. 60fs, Fr. 75, Fr. 76, and three additional year courses in literature in the 100 group; German—Ger. 60fs, Ger. 75, Ger. 76, and three additional year courses in the 100 group; Spanish—Span. 60fs, Span. 75, Span. 76, and at least sixteen hours in the 100 group.

Classical Languages. (For the degree of bachelor of arts). Both a major and minor are offered in Latin consisting of 30 and 20 semester hours respectively. The courses are chosen with the advice of the Department of Classical Languages.

Mathematics. (For the degree of bachelor of science.) Twenty-eight semester hours are required for the major. The following sequence is recommended: Math. 7, 21, and 22 in the freshman year; Math. 18fs and 23fs in the sophomore year; Math. 111, 112, and 141 in the junior and senior years.

Twenty semester hours are required for the minor. The following course sequence is advised: Math. 7, 21, and 22 in the freshman year; Math. 23fs in the sophomore year; and Math. 18fs and 61 in the junior and senior years.

Students who pass an examination in solid geometry may be excused from Math. 7.

Science. (For the degree of bachelor of science.) In general science a major and minor are offered, consisting of 40 and 30 semester hours respectively, each including elementary courses in chemistry, physics, and biology (zoology and botany). The major should include one of the following course sequences.

Sequences I and II, emphasizing chemistry or physics:

Freshman year: *Math. 8 (3) or 21 (4); 9 (3) or 22 (4); Chem. 1fs (8).

Sophomore year: Bot. 1 (4); Phys. 1fs (8).

Junior and Senior years: Phys. 103fs (6) or Chem. 12fs (6), and 103fs (6); Zool. 2fs (8); Bact. 1A (2).

Sequence III, emphasizing zoology:

Freshman year: Zool. 2fs (8); Chem. 1fs (8).

Sophomore year: Zool. 15fs (8); Bot. 1 (4).

Junior and Senior years: Zool. 121 (3) or 120 (3); 102 (3).

Sequence IV, emphasizing botany:

Freshman year: Zool. 2fs (8); Chem. 1fs (8).

Sophomore year: Bot. 1 (4) and 3 (4); Phys. 3fs (6) or 1fs (8).

Junior and Senior years: Plt. Phys. 101 (4) and 102 (3); Bact. 1A (2).

Minors of twenty semester hours are offered in chemistry, in physics, and in biological sciences. A minor in biology must include the basic courses in zoology and botany and be supported by a course in chemistry (Chem. 1fs or 3fs). A minor in physics must be supported by a basic course in chemistry (Chem. 1fs or 3fs) and a minor in chemistry by a basic course in physics (Phys. 1fs or 3fs).

If a major in general science is accompanied by a minor in chemistry, physics, or biology, the same credits may be counted towards both provided that they number not fewer than 52 semester hours in natural sciences.

*Mathematics credits are not counted in the total number of hours required for the science major.

COMMERCIAL EDUCATION

(For the degree of bachelor of science)

Students may enter this curriculum with high school preparation represented by B or E under Admissions Section.

The Commercial Education curriculum includes a solid foundation of economics, social science and history, accounting and business administration subjects, adequate courses in methods of teaching commercial subjects, and supervised teaching.

The number of electives is large enough to enable a student to prepare for teaching some other subject in addition to the commercial subjects.

Commercial Education Curriculum

	Semester	
	I	II
<i>Freshman Year</i>		
Ed. 2—Introduction to Education.....	2	—
*Speech 2—Voice and Diction.....	—	3
Eng. 1fs—Survey and Composition.....	3	3
Sec. 1fs—Elementary Office Technique.....	2	2
Econ. 1—Economic Geography.....	3	—
Pol. Sci. 1—American National Government.....	—	3
H. 5, 6—American History.....	3	3
Science (Biological or Physical).....	3-4	3-4
M. I. 1fs—Basic R. O. T. C. (Men).....	1-1	
Phys. Ed. 2fs—Personal Hygiene (Women).....	1/2-1/2	1
Phys. Ed. 4fs—Physical Activities (Women).....	1/2-1/2	
	—	—
	17-18	18-19
<i>Sophomore Year</i>		
Ed. 3—Educational Forum.....	1	—
Eng. 4—Expository Writing.....	2	—
Eng. 6—Business English.....	—	2
Sec. 3fs—Intermediate Office Techniques.....	3	3
Econ. 31, 32—Principles of Economics.....	3	3
Acct. 31fs—Principles of Accounting.....	4	4
L. S. 2—Sources of Business Information.....	—	1
M. I. 2fs—Basic R. O. T. C. (Men).....	2-2	
Phys. Ed. 6fs—Community Hygiene (Women).....	1-1	2
Phys. Ed. 8fs—Physical Activities (Women).....	1-1	
Electives.....	2	2
	—	—
	17	17

*Students who take Ed. 2 in the second semester should take Speech 2 in the first semester of the sophomore year.

COLLEGE OF EDUCATION

	Semester	
	I	II
<i>Junior Year</i>		
Ed. 112—Educational Sociology—Introductory.....	2	—
Ed. 103—Theory of the Senior High School.....	—	2
or		
Ed. 110—The Junior High School.....		
Psych. 55—Educational Psychology.....	3	—
Ed. 150, 151—Curriculum, Instruction, and Observation—Commercial Subjects.....	2	2
Sec. 5fs—Secretarial Work.....	3	3
Fin. 111—Corporation Finance.....	3	—
†Econ. 136—Economics of Consumption.....	3	—
†Stat. 14—Elements of Statistics.....	—	3
Bus. 164—Business Law.....	—	3
Econ. 43—Money and Banking.....	—	3
Electives.....	2	2
	—	—
	18	18
<i>Senior Year</i>		
Ed. 105—Educational Measurement.....	2	—
Ed. 139 or Ed. 140—Methods and Practice of Teaching.....	3 or 3	or 3
Bus. 165—Business Law.....	3	—
Electives.....	7	6-12
	—	—
	15	12-15

HOME ECONOMICS EDUCATION

The Home Economics Education curriculum is designed for students who are preparing to teach vocational or general home economics or to engage in any phase of home economics work which requires a knowledge of teaching methods. It includes studies of all phases of home economics and the allied sciences, with professional training for teaching these subjects. Electives may be chosen from other colleges.

Opportunity for additional training and practice is given through directed teaching and through experience in the home management house.

Students electing this curriculum may register in the College of Education or the College of Home Economics. Students will be certified for graduation only upon fulfillment of all the requirements of this curriculum.

†History may be substituted for these courses by students who wish to build a teaching field in the social studies.

Home Economics Curriculum

Freshman Year

	Semester	
	I	II
Eng. 1fs—Survey and Composition.....	3	3
Chem. 1fs—General Chemistry.....	4	4
H. E. 15—Textiles.....	3	—
H. E. 21—Design.....	—	3
Speech 1fs—Public Speaking.....	1	1
H. E. 1fs—Freshman Lecture.....	1	1
Ed. 2—Introduction to Education.....	2	—
Bot. 2—Introductory Botany.....	—	3
Phys. Ed. 2fs—Personal Hygiene.....	½	½
Phys. Ed. 4fs—Physical Activities.....	½	½
	15	16

Sophomore Year

H. E. 24—Costume Design.....	3	—
H. E. 11—Clothing.....	—	3
H. E. 31fs—Foods.....	3	3
Phys. 3fs—Introductory Physics.....	3	3
Soc. 3—Introduction to Sociology.....	3	—
Chem. 12Afs—Elements of Organic Chemistry.....	2	2
Econ. 57—Fundamentals of Economics.....	—	3
Ed. 3—Educational Forum.....	1	—
Phys. Ed. 6fs—Community Hygiene.....	1	1
Phys. Ed. 8fs—Physical Activities.....	1	1
	17	16

Junior Year

Psych. 55—Educational Psychology.....	3	—
H. E. Ed. 101—Curriculum, Instruction, and Observation.....	—	3
Bact. 3—Household Bacteriology.....	—	3
H. E. 131—Nutrition.....	3	—
H. E. 137—Food Buying and Meal Service.....	—	3
H. E. 141, 142—Management of the Home.....	3	3
H. E. 111—Advanced Clothing.....	3	—
Zool. 16—Human Physiology.....	—	3
H. E. 133—Demonstrations.....	2	—
Ed. 103—Theory of the Senior High School.....	}	2
or		
Ed. 110—The Junior High School.....	—	2
Electives.....	3	—
	17	17

Senior Year

	Semester	
	I	II
H. E. Ed. 102—Child Study.....	—	3
H. E. 143—Practice in Management of the Home.....	—	3
H. E. Ed. 103—Teaching Secondary Vocational Home Economics.....	3-6	—
H. E. 121, 122—Interior Design.....	3	3
H. E. Ed. 106fs—Problems in Teaching Home Economics.....	1	1
Ed. 105—Educational Measurements.....	2	—
Phys. Ed. 66—First Aid.....	—	1
*Electives.....	6	4
	15-18	15

INDUSTRIAL EDUCATION

The program of studies provides: (1) a four-year curriculum leading to the degree of Bachelor of Science in Industrial Arts and Vocational Education; (2) a program of professional courses to prepare teachers to meet the certification requirements in vocational and occupational schools; (3) a program of courses for the improvement of teachers in service.

I. Four-year Curriculum.

The entrance requirements are the same as for the other curricula offered in the University. Experience in some trade or industrial activity will benefit students preparing to teach industrial subjects.

This curriculum is designed to prepare teachers of trade and industrial shop and related subjects, and teachers of industrial arts. There is sufficient latitude of electives so that a student may also meet certification requirements in some other high school subject.

Students entering an Industrial Education curriculum must register in the College of Education.

This curriculum, with limited variations according to the needs of the two groups, is so administered as to provide: (A) a four-year Industrial Arts curriculum for students in residence; (B) a four-year curriculum for in-service teachers of Industrial Arts and Occupational and Vocational subjects.

*Electives should include one course each in History and English.

Industrial Educational Curriculum for Students in Residence

	Semester	
	I	II
<i>Freshman Year</i>		
Ind. Ed. 1—Mechanical Drawing	2	—
Ind. Ed. 21—Mechanical Drawing	—	2
Ind. Ed. 2—Elementary Woodworking	3	—
Ind. Ed. 22—Machine Woodworking	—	3
Ed. 2—Introduction to Education	2	—
Speech 2—Voice and Diction	—	3
Eng. 1fs—Survey and Composition	3	3
Math. 8, 9—Elements of College Mathematics	3	3
History or Social Science	3	3
M. I. 1fs—Basic R. O. T. C.	1	1
	17	18
<i>Sophomore Year</i>		
Ind. Ed. 24—Sheet Metal Work	—	2
Ind. Ed. 26—Art Metal Work	2	—
Ind. Ed. 41—Architectural Drawing	—	2
Ind. Ed. 28—Electricity	2	—
Ind. Ed. 48—Advanced Electricity	—	2
Ind. Ed. 23—Forge Practice	—	1
Ed. 3—Educational Forum	1	or 1
Eng. 2, 3—Survey and Composition	3	3
Math. 7—Solid Geometry	2	—
Chem. 3fs or 1fs—General Chemistry or Introductory Chem- istry	3-4	3-4
M. I. 2fs—Basic R. O. T. C.	2	2
Elective	1	—
	16-17	16-17
<i>Junior Year</i>		
Ind. Ed. 67—Cold Metal Work	2	—
Ind. Ed. 69—Elementary Machine Shop Practice	—	2
Ind. Ed. 110—Foundry	1	—
Ind. Ed. 160—Essentials of Design	—	2
Ind. Ed. 162—Curriculum, Instruction, and Observation	—	3
Psych. 55—Educational Psychology	3	—
Ed. 112—Educational Sociology—Introductory	2	—
Ed. 103—Theory of the Senior High School	—	2
or		
Ed. 110—The Junior High School		
Phys. 3fs or 1fs—Introductory Physics or General Physics	3-4	3-4
History or Social Science	3	3
Electives	2	1
	16-17	16-17

	Semester	
	I	II
<i>Senior Year</i>		
Ind. Ed. 89—Advanced Machine Shop	—	2
Ind. Ed. 164—Shop Organization and Management	2	—
Ed. 105—Educational Measurements	2	—
Ed. 114—Guidance in the Schools	—	3
Ed. 139 or Ed. 140—Methods and Practice of Teaching	3-6	3-6
Econ. 37—Fundamentals of Economics	3	or 3
Electives	3-12	2-11
	16	16

Curriculum for Teachers in Service

The requirements in this curriculum for the B. S. degree in Industrial Arts and Vocational Education are quantitatively the same as for Curriculum A, except that the military science-physical training requirements are waived. The distribution is approximately as follows:

English	12 semester hours
History and the Social Sciences	16 semester hours
Mathematics and Science	20 semester hours
Shop and Drawing	30 semester hours
Education	24 semester hours
Electives	26 semester hours
	128 semester hours

In the mathematics and science group, and in the history and social science group, there is reasonable latitude for individual choice, but courses in mathematics as related to shopwork, and courses in American history and government are required.

Program for Vocational, Occupational, and Shop Center Teachers

This curriculum is designed for persons who have had experience in some trade or industry or in the teaching of shopwork.

Applicants for admission to this curriculum must have as a minimum requirement an elementary school education or its equivalent. The curriculum is prescribed, but is administered flexibly in order that it may be adjusted to the needs of students.

To meet the needs for industrial teacher-training in Baltimore and in other industrial centers, in-service courses are offered. The work of these courses deals principally with the analysis and classification of trade knowledge for instructional purposes, methods of teaching, observation and practice of teaching, psychology of trade and industrial education, and occupational information, guidance, and placement.

PHYSICAL EDUCATION

The general requirements are the same as for Arts and Sciences Education (see page 146), except that 22 semester hours of science are required as scheduled.

Physical Education Curriculum

Freshman Year

	Semester	
	I	II
Eng. 1fs—Survey and Composition.....	3	3
Zool. 1—General Zoology.....	—	4
Bot. 1—General Botany.....	4	—
Phys. Ed. 18—Introductory Hygiene.....	2	—
Ed. 2—Introduction to Education.....	2	—
Speech 2—Voice and Diction.....	—	3
Electives: History, Foreign Language, Mathematics, Home Economics, Industrial Education, Physics.....	3	4

Women

Phys. Ed. 10fs—Dance	1	1
Phys. Ed. 12fs—Athletics	2	2

Men

M. I. 1fs—Basic R. O. T. C.....	1	1
Phys. Ed. 5fs—Athletics.....	2	2
	—	—
	17	17

Sophomore Year

Soc. 3—Introduction to Sociology.....	3	—
Eng. 2, 3—Survey and Composition.....	3	3
Zool. 15fs—Human Anatomy and Physiology.....	4	4
Chem. 1fs or 3fs—General Chemistry or Introductory Chemistry	4-3	4-3
Ed. 3—Educational Forum.....	1	or 1
Phys. Ed. 20—Physical Education.....	—	3

Women

Phys. Ed. 14fs—Dance	1	1
Phys. Ed. 22fs—Athletics	2	2

Men

M. I. 2fs—Basic R. O. T. C.....	2	2
Phys. Ed. 15fs—Gymnastics.....	1	1
	—	—
	16-18	16-18

Semester

I II

Junior Year

Psych. 55—Educational Psychology.....	3	—
Ed. 112—Educational Sociology-Introductory	2	—
Phys. Ed. 121—Physiology of Exercise.....	2	—
Phys. Ed. 133—Nature of Play.....	—	2
Phys. Ed. 63—Accident Prevention	1	—
Phys. Ed. 66—First Aid	—	1
Phys. Ed. 76fs—Dance	1	1
Phys. Ed. 52fs—Physical Activities	1	1
Phys. Ed. 123—Maturation of the Human Organism.....	—	2
Phys. Ed. 127fs—Analysis of Activities.....	2	2
Ed. 103—Theory of the Senior High School.....	—	2
or		
Ed. 110—The Junior High School.....	—	3
Ed. 142—Curriculum, Instruction and Observation.....		
Electives	3	1

Women

Phys. Ed. 78—Dance	1	—
Phys. Ed. 90—Dance	—	1

Men

Phys. Ed. 113fs—Athletics	1	1
	—	—
	16	16

Senior Year

Ed. 105—Educational Measurements	2	—
Ed. 139 or Ed. 140—Methods and Practice of Teaching.....	3-6	or 3-6
Phys. Ed. 146—Teaching Health	—	2
Phys. Ed. 137—Recreation	2	—
Phys. Ed. 144—Physical Education	2	—
Electives	2-8	6-12

Women

Phys. Ed. 114fs—Athletics.....	1	1
--------------------------------	---	---

Men

Phys. Ed. 119fs—Athletics.....	1	1
	—	—
	15	15

**COLLEGE OF
ENGINEERING**



*“Engineering—The art of
directing the great sources of
power in nature for the use and
convenience of man.”*

—Thomas Tredgold, 1828.

COLLEGE OF ENGINEERING

S. S. STEINBERG, *Dean*.MARGARET G. ENGLE, *Secretary to Dean*.

The primary purpose of the College of Engineering is to train young men to practice the profession of Engineering. It endeavors at the same time to equip them for their duties as citizens and for careers in public service and in industry.

The new economic conditions with which the engineering graduate will be faced when he goes into practice have emphasized the necessity for the adjustment of engineering curricula in their scope and objectives. It has become evident that greater emphasis than heretofore should be placed on the fundamentals of engineering, and that the engineer's training should include a knowledge of the sciences which deal with human relations and a familiarity with business organization and operation.

Accordingly, our engineering curricula have been revised recently to increase the time devoted to fundamentals and to non-technical subjects, which are a necessary part of the equipment of every educated man, and which are now considered essential to the proper training of engineers because of the practical application of these subjects in professional and business life. It is well recognized that an engineering training affords an efficient preparation for many callings in public and private life outside the engineering profession.

The College of Engineering includes the Departments of Chemical, Civil, Electrical, and Mechanical Engineering. In the Mechanical Engineering Department Aeronautical Engineering is offered as an option in the junior and senior years. In order to give the student time to choose the branch of engineering for which he is best adapted, the freshman year of the several courses is the same. Lectures and conferences are used to guide the student to make a proper selection. The courses differ only slightly in the sophomore year, but in the junior and senior years the students are directed definitely along professional lines.

Admission Requirements

The requirements for admission to the College of Engineering are, in general, the same as elsewhere described for admission to the undergraduate departments of the University, except as to the requirements in mathematics. See Admission, Section I.

It is possible, however, for high school graduates having the requisite number of entrance units to enter the College of Engineering without the unit of advanced algebra, or the one-half unit of solid geometry. The program for such students would be as follows: during the first semester, five hours a week would be devoted to making up advanced algebra and solid geometry; in the second semester, mathematics of the first semester would be scheduled, and the second semester mathematics would be taken in the third semester.

Bachelor Degrees in Engineering

Courses leading to the degree of Bachelor of Science are offered in chemical, civil, electrical, and mechanical engineering, and mechanical engineering with aeronautical option, respectively.

Master of Science in Engineering

The degree of Master of Science in Engineering may be earned by students registered in the Graduate School who hold bachelor degrees in engineering, which represent an amount of preparation and work similar to that required for bachelor degrees in the College of Engineering of the University of Maryland.

Candidates for the degree of Master of Science in Engineering are accepted in accordance with the procedure and requirements of the Graduate School. See Graduate School, Section II.

Professional Degrees in Engineering

The degrees of Chemical Engineer, Civil Engineer, Electrical Engineer, and Mechanical Engineer will be granted only to graduates of the University who have obtained a bachelor's degree in engineering. The applicant must satisfy the following conditions:

1. He shall have engaged successfully in acceptable engineering work not less than four years after graduation.
2. He must be considered eligible by a committee composed of the Dean of the College of Engineering and the heads of the Departments of Chemical, Civil, Electrical, and Mechanical Engineering.
3. His registration for a degree must be approved at least twelve months prior to the date on which the degree is to be conferred. He shall present with his application a complete report of his engineering experience and an outline of his proposed thesis.
4. He shall present a satisfactory thesis on an approved subject.

Equipment

The Engineering buildings are provided with lecture-rooms, recitation-rooms, drafting-rooms, laboratories, and shops for various phases of engineering work.

Drafting-Rooms. The drafting rooms are fully equipped for practical work. The engineering student must provide himself with an approved drawing outfit, material, and books.

Chemical Engineering Laboratories. For instruction and research, the Chemical Engineering Department maintains laboratories for (1) General Testing and Control; (2) Unit Operations; (3) Cooperative Research; (4) Graduate Research.

General Testing and Control Laboratory. In this laboratory there is available complete equipment for the chemical and physical testing of water, gases, coal, petroleum, and their by-products; and for general industrial chemicals, both inorganic and organic.

Unit Operations Laboratory. This laboratory contains equipment for the study of fluid flow, heat flow, drying filtration, distillation, evaporation, crushing, grinding, combustion, gas absorption, extraction, and centrifuging. Organic process equipment includes an autoclave, nitrator, reducer, and mixing kettle. For the study of fluid flow a permanent hydraulic assembly is available, and this includes flow meters of most types.

In the laboratory there is a large column still with a kettle capacity of 100 gallons, equipped for the measurement of temperature and pressure, sampling devices, condensers, and vacuum receivers. This still is so designed that it can be used either as a batch type unit, continuous feed type, direct pot still, steam still, or as a vacuum still. Studies in evaporation can be made on a double effect evaporator, one unit of which is equipped with a horizontal tube bundle and the other with a vertical tube bundle. This evaporator is equipped with vacuum and pressure gauges, stirrer, wet vacuum pump, a condensate pump, and a salt filter with different types of packings in respective sections so that comparative studies may be made. The organic process equipment is all self-driven and designed to afford flexibility in use. Filtration studies may be made either on a large plate and frame press or on the ordinary Sweetland type press. Gas absorption equipment includes a blower and a stoneware packed column. Combustion equipment available consists of an industrial carburetor, pot furnace, pre-mix gas fired furnace and the usual gas analysis equipment. Shop facilities include a lathe, drill press, grinder, welding equipment, and other tools necessary for unit operation and research studies. For grinding there is a jaw crusher, a disc crusher, and a ball mill. A mechanical shaker and standard sieve are available for particle size separation.

Cooperative and Graduate Research Laboratories. These laboratories are arranged to permit the installation of such special equipment as the particular problems under consideration may require. Effort is made to maintain cooperation with the industries of Maryland and the Chemical Engineering activities of the State and Federal governments; for such work important advantages accrue because of the location of the Eastern Experiment Station of the United States Bureau of Mines on the University campus.

Electrical Machinery Laboratories. There is provided a motor-generator set, consisting of a synchronous motor and a compound direct-current generator with motor and generator control panels, to furnish direct current for testing purposes. Through a distribution switchboard, provision is made for distributing to the various laboratories direct current at 125 volts, and alternating current, single-phase, and three-phase, at 110 and 220 volts.

High-current potential dividers and auto-transformers are available at the testing stations for individual voltage control. A single-phase induction regulator with control panel is also available for voltage regulation of experimental circuits. At the individual testing stations, use is made of specially constructed instrument tables which are designed to facilitate measurements in fundamental, direct-current machinery, and alternating-current machinery experiments.

The test equipment includes a variety of direct-and alternating-current generators and motors, distribution transformers, a synchronous converter, an induction regulator, and modern control apparatus. Most of the machines are of modern construction and of such size and design as to give typical performance characteristics. Flexibility of operation is provided in several ways: for example, direct-current machines and alternating-current machines are mounted on common bases with provisions for easy mechanical coupling and any machine may be readily connected electrically to any other machine through a common distribution panel. Metering and control boards are provided for rapid change of operating conditions with any machine. Water-cooled prony brakes are available for machine testing.

Included in the test equipment are the measuring instruments essential for practical electrical testing, namely, ammeters, voltmeters, wattmeters, watthourmeters, frequency meters, tachometers, stroboscopes, Wheatstone bridges, impedance bridges, and oscillographs.

Illumination Laboratory. The equipment includes electric lamps, shades, and reflectors of various types; bar photometers for determination of candle-power distribution of incandescent lamps; and four types of portable photometers for the measurement of illumination intensities. Several rather large fluorescent light installations are available for study in nearby rooms.

Electrical Measurements Laboratory. The calibrating equipment consists of standards of potential and resistance which are used in conjunction with modern potentiometers to maintain calibration of a standard ammeter, voltmeter, and watthourmeter. Secondary standards of potential, resistance, inductance, capacitance, and frequency are available. Auxiliary devices such as oscillators, amplifiers, rectifiers, wavemeters, bridges, and galvanometers are also available.

A five-machine motor-generator set delivers voltages and currents, both alternating and direct, to test tables for meter testing. Equipment is also available for the experimental study of electric and magnetic fields, non-linear circuit elements and other topics in the field of electricity and magnetism.

Electronics Laboratory. This laboratory is housed in the same room as the measurements laboratory thereby permitting direct use of the measurements equipment. A wide variety of vacuum tubes, gas-filled tubes, and

photo-tubes is provided for studying tube characteristics. Associated equipment is also provided for making quantitative studies of emission, rectification, amplification, and oscillation. This equipment includes cathode-ray oscillographs, vacuum-tube voltmeters, microvoltmeters, and driving oscillators.

Electrical Communications Laboratory. Equipment for studying both wire and wireless communication is provided. Transmission circuits, including artificial lines, filter sections, attenuation sections, and coupling devices are provided. A transmission loss or gain set is available.

Rectifiers, amplifiers, oscillators, and a demonstration radio set are provided for making radio communication studies.

The University maintains an amateur short-wave station, under faculty supervision, for members of the Student Radio Society. This station is equipped with a multi-band superheterodyne amateur communications receiver and a 500-watt transmitter adjustable to amateur frequencies.

Mechanical Engineering Laboratories. The apparatus consists of slide valve automatic steam engines equipped with Prony brakes, steam turbine-generator set, Waukesha Diesel engine research unit with electric dynamometer and other accessories, two-stage steam-driver air compressor, gas engines, fans, pumps, indicators, gauges, feed water heaters, steam condensers, tachometers, injectors, flow meters, pyrometers, draft gauges, planimeters, thermometers, and other necessary apparatus and equipment for a mechanical engineering laboratory. A refrigeration unit and a heating and ventilation unit have been installed.

Aeronautical Laboratory. The laboratory is equipped for practice and research in engines, metal aircraft construction, structural tests, vibration and noise, and aerodynamics. A three-foot return type wind tunnel, fully equipped with balances and other instruments and electrically operated, has been constructed for standard experiments in aerodynamics and for student thesis research.

A sheet metal shop equipped to construct components of aircraft structures in aluminum alloy and steel is available. This shop includes such equipment as automatic air riveting hammer, planishing machines, squaring shears, rolls, brake, heat treating furnace, etc. A small machine shop is also available for students in constructing research apparatus. Variable speed motors are available for experiments in vibration and noise.

The laboratory also includes a research spot welding machine, a sixty thousand-pound Baldwin-Southwark aircraft universal testing machine, Tuckerman gauges, oscillographs with accessories, and a Timby hydraulic jack system for static testing.

Hydraulics Laboratory. The equipment consists of electrically driven centrifugal pumps, measuring tanks, various types of weirs, venturi meters, nozzles, Pelton water wheel with Prony brake built especially for laboratory

use, hook gauges, dial gauges, tachometers, stop watches, and other apparatus necessary for the study of the flow characteristics of water.

Materials Laboratories. Apparatus and equipment are provided for making standard tests on various construction materials, such as sand, gravel, steel, concrete, timber, and brick.

Equipment includes a 300,000-pound hydraulic testing machine, two 100,000-pound universal testing machines, torsion testing machine, hardness tester, abrasion testing machine, rattler, constant temperature chamber, cement-testing apparatus, extensometer and micrometer gauges, and other special devices for ascertaining the elastic properties of different materials.

Special apparatus which has been designed and made in the shops of the University is also made available for student work.

The College of Engineering owns a Beggs deformeter apparatus for the mechanical solution of stresses in structures by use of celluloid models. Equipment is also available for study of models by the photo-elastic method.

Engineering Soils Laboratory. Equipment is available for performing the usual tests on engineering soils. This includes apparatus for grain size analysis, Atterberg limits, permeability, optimum moisture content for compaction, Proctor penetration, and consolidation.

Research Foundation. The National Sand and Gravel Association has, by arrangement with the College of Engineering, established its testing and research laboratory at the University. The purpose of the Research Foundation thus organized is to make available to the Association additional facilities for its investigational work, and to provide for the College of Engineering additional facilities and opportunities for increasing the scope of its engineering research.

Engineering Experiment Station. The purpose of the Engineering Experiment Station at the University, as well as of the various research laboratories, is to conduct cooperative studies with departments of the State and Federal governments, and with the industries of Maryland. These studies have included traffic surveys over the Maryland State highway system, studies of concrete cores cut from the state roads, and laboratory studies of the elastic properties of concrete.

Cooperative researches now under way in the Engineering Experiment Station include the following projects: reinforced concrete hinge construction, expansion joints for concrete roads, diagonal tension reinforcement for concrete beams, operating effect of size of motor in single phase rural electric lines, electrical wave shaper recorder, studies on airplane design, on petroleum and lubricating oils, and on gases.

Machine Shops and Foundry. The machine shops and foundry are well lighted and fully equipped. Shops for wood working, metal, forge, and foundry practice are provided.

The wood-working shop has full equipment of hand and power machinery.

The machine shops are equipped with various types of lathes, planers, milling machines, drill presses, shaper, midget mill, and precision boring head. Equipment is available for gas and electric arc welding.

The shop equipment not only furnishes practice, drill, and instruction for students, but makes possible the complete production of special apparatus for conducting experimental and research work in engineering.

Surveying Equipment. Surveying equipment for plane topographic, and geodetic surveying is provided properly to equip several field parties. A wide variety of surveying instruments is provided, including domestic as well as foreign makes.

Special Models and Specimens. A number of models illustrating various types of highway construction and highway bridges are available.

A wide variety of specimens of the more common minerals and rocks has been collected from various sections of the country, particularly from Maryland.

Engineering Library

In addition to the general University Library, each department maintains a library for reference, and receives the standard engineering magazines. The class work, particularly in advanced courses, requires that students consult special books of reference and current technical literature.

The Davis Library of Highway Engineering and Transport, founded by Dr. Charles H. Davis, President of the National Highways Association, is part of the Library of the College of Engineering. The many books, periodicals, pamphlets, and other items included in this library cover all phases of highway engineering, highway transportation, and highway traffic control.

There has also been donated to the College of Engineering the transportation library of the late J. Rowland Bibbins of Washington, D. C. The books and reports in this library deal with urban transportation problems, including railroads, street cars, subways, busses, and city planning.

Curricula

The normal curriculum of each department is outlined on the following pages. Students are expected to attend and take part in the meetings of the student chapters of the technical engineering societies.

Freshman engineering students are given a special course of lectures by practicing engineers covering the work of the several engineering professional fields. The purpose of this course is to assist the freshman in selecting the particular field of engineering for which he is best adapted. The student is required to submit a brief written summary of each lecture. A series of engineering lectures for upper classmen is also provided. These

are given weekly by prominent practicing engineers in the various branches of the profession.

Student branches of the following national technical societies are established in the College of Engineering: American Institute of Chemical Engineers, American Society of Civil Engineers, American Institute of Electrical Engineers, and American Society of Mechanical Engineers. The student branches meet regularly for the discussion of topics dealing with the various fields of engineering.

A student in the College of Engineering will be certified as a junior when he shall have passed at least 68 semester credit hours with an average grade of C or higher.

Junior and senior students with requisite standing may elect, with the permission of the Dean of the College of Engineering, additional courses not exceeding three credits a semester.

The proximity of the University to Baltimore and Washington, and to other places where there are large industrial enterprises, offers an excellent opportunity for the engineering student to observe what is being done in his chosen field. An instructor accompanies students on all inspection trips, and the student is required to submit a written report of each trip.

BASIC CURRICULUM FOR ALL FRESHMAN STUDENTS IN THE COLLEGE OF ENGINEERING

All Freshman students are required to take the following curriculum during their first year:

<i>Freshman Year</i>	<i>Semester</i>	
	<i>I</i>	<i>II</i>
Eng. 1fs—Survey and Composition.....	3	3
Speech 1fs—Public Speaking.....	1	1
*Math. 21.—College Algebra and Plane Trigonometry.....	4	—
Math. 22—Analytic Geometry.....	—	4
Chem. 1fs—General Chemistry.....	4	4
Dr. 1—Engineering Drawing.....	2	—
Dr. 2—Descriptive Geometry.....	—	2
Shop 1—Forge Practice.....	—	1
Engr. 1—Introduction to Engineering.....	1	—
M. I. 1fs—Basic R. O. T. C.....	1	1
†Elective	3	3
	19	19

*A qualifying test is given at the close of the first two weeks to determine whether the student is adequately prepared for Math. 21. A student failing this test is required to take Math. 1, a one-semester course without credit.

†The student may elect a course in Social Science, History, Language, or Government. Students who plan to enroll in Chemical Engineering are advised to take German or French.

CHEMICAL ENGINEERING

Chemical Engineering deals primarily with the industrial and economic transformation of matter. It seeks to assemble and develop information on chemical operations and processes of importance in modern life and to apply this under executive direction, according to engineering methods, for the attainment of economic objectives. Modern chemical research has contributed so much to industrial and social welfare that the field of the chemical engineer may now be said to cover practically every operation in which any industrial material undergoes a change in its chemical identity.

Chemical Engineering Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Chem. 4—Quantitative Analysis.....	4	—
Ch. E. 10—Water, Fuels, and Lubricants.....	—	4
Math. 23fs—Calculus	4	4
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Surv. 1—Elements of Plane Surveying.....	—	1
Modern Language (French or German).....	3	3
Phys. 2fs—General Physics.....	5	5
M. I. 2fs—Basic R. O. T. C.....	2	2
	—	—
	20	21
<i>Junior Year</i>		
Phys. 117fs—Applied Mechanics.....	2	2
Chem. 102Afs—Physical Chemistry.....	3	3
Chem. 102Bfs—Physical Chemistry Laboratory.....	2	2
Econ. 31, 32—Principles of Economics.....	3	3
E. E. 51fs—Principles of Electrical Engineering.....	4	4
Ch. E. 103fs—Elements of Chemical Engineering.....	3	3
*Non-Engineering Elective	3	3
	—	—
	20	20
<i>Senior Year</i>		
Ch. E. 108fs—Chemical Technology	2	2
Ch. E. 109fs—Chemical Engineering Thermodynamics.....	2	2
Ch. E. 105fs—Advanced Unit Operations	5	5
Ch. E. 110fs—Chemical Engineering Calculations.....	3	3
Ch. E. 111fs—Explosives and Toxic Gases.....	2	2
Ch. E. 104fs—Chemical Engineering Seminar.....	1	1
Bus. 71—Fundamentals of Business Administration.....	2	—
C. E. 107—Elements of Structure.....	—	3
*Non-Engineering Elective	3	3
	—	—
	20	21

*Advanced R. O. T. C. for qualified students, or other approved non-engineering course.

CHEMICAL ENGINEERING-CHEMISTRY

A five-year program in Chemical Engineering and Chemistry, arranged between the College of Engineering and the College of Arts and Sciences, permits students, who so desire, to become candidates for the degrees of Bachelor of Science in Engineering and Bachelor of Science in Chemistry upon completion of the program outlined below:

Chemical Engineering-Chemistry Curriculum

	Semester	
	I	II
<i>*Sophomore Year</i>		
Eng. 4, 5—Expository Writing.....	2	2
Modern Language (French or German).....	3	3
Math. 23fs—Calculus	4	4
Phys. 2fs—General Physics	5	5
Chem. 2fs—Qualitative Analysis.....	3	3
Surv. 1—Elements of Plane Surveying.....	—	1
M. I. 2fs—Basic R. O. T. C.....	2	2
	—	—
	19	20
<i>Third Year</i>		
Chem. 8Afs—Elementary Organic Chemistry.....	2	2
Chem. 8Bfs—Elementary Organic Laboratory.....	2	2
Chem. 6fs—Quantitative Analysis.....	4	4
Ch. E. 10—Water, Fuels and Lubricants.....	—	4
Phys. 117fs—Applied Mechanics.....	2	2
Econ. 31, 32—Principles of Economics.....	3	3
Phys. 101—Precision of Measurements.....	3	—
‡Non-Engineering Elective	3	3
	—	—
	19	20
<i>Fourth Year</i>		
Chem. 102Afs—Physical Chemistry	3	3
Chem. 102Bfs—Physical Chemistry Laboratory.....	2	2
E. E. 51fs—Principles of Electrical Engineering.....	4	4
Chem. 116fs—Advanced Organic Chemistry.....	2	2
Chem. 117fs—Organic Laboratory	2	2
Ch. E. 103fs—Elements of Chemical Engineering.....	3	3
‡Non-Engineering Elective	3	3
	—	—
	19	19

*Chemistry majors not taking an accelerated program who wish to transfer to the five-year combined program should take, if possible, Chemistry or Economics 31, 32 in the summer semester preceding the sophomore year.

‡Advanced R. O. T. C. for qualified students, or other approved non-engineering course.

†Three hours must be chosen from Social Science.

	Semester	
	I	II
<i>Fifth Year</i>		
Ch. E. 109fs—Chemical Engineering Thermodynamics	2	2
Ch. E. 104fs—Chemical Engineering Seminar	1	1
Ch. E. 105fs—Advanced Unit Operations	5	5
Bus. 71—Fundamentals of Business Administration	2	—
Elective-English	—	2
Chem. 118fs—Advanced Organic Laboratory	1	1
Ch. E. 111fs—Explosives and Toxic Gases	2	2
C. E. 107—Elements of Structures	—	3
Ch. E. 110fs—Chemical Engineering Calculations	3	3
Ch. E. 108fs—Chemical Technology	2	2
	18	21

CIVIL ENGINEERING

Civil Engineering deals with the design, construction, and maintenance of highways, railroads, waterways, bridges, buildings, water supply and sewerage systems, harbor improvements, dams, and surveying and mapping.

Civil Engineering Curriculum		Semester	
<i>Sophomore Year</i>		I	II
Speech 5—Oral Technical English		2	—
Math. 23fs—Calculus		4	4
Phys. 2fs—General Physics		5	5
Dr. 3—Advanced Engineering Drawing		2	—
Mech. 1—Statics and Dynamics		—	3
Surv. 2fs—Plane Surveying		2	3
Geol. 2—Engineering Geology		2	—
Econ. 37—Fundamentals of Economics		—	3
M. I. 2fs—Basic R. O. T. C.		2	2
		19	20
<i>Junior Year</i>			
Speech 6—Advanced Oral Technical English		—	2
Mech. 50—Strength of Materials		5	—
C. E. 50—Hydraulics		—	4
Mech. 52—Materials of Engineering		—	2
M. E. 50—Principles of Mechanical Engineering		3	—
E. E. 50—Principles of Electrical Engineering		—	3
C. E. 52—Curves and Earthwork		3	—
C. E. 100—Theory of Structures		—	4
Surv. 100—Advanced Surveying		4	—
*Non-Engineering Elective		3	3
Technical Society		—	—
		18	18

*Advanced R. O. T. C. for qualified students, or other approved non-engineering course.

	Semester	
	I	II
<i>Senior Year</i>		
Speech 7fs—Advanced Oral Technical English	1	1
Engr. 100—Engineering Law and Specifications	—	2
C. E. 101—Elements of Highways	3	—
C. E. 102fs—Concrete Design	4	3
C. E. 103fs—Structural Design	4	3
C. E. 104fs—Municipal Sanitation	3	3
C. E. 105—Soils and Foundations	—	3
†Elective	3	3
Technical Society	—	—
	18	18

ELECTRICAL ENGINEERING

Electrical Engineering deals with the generation, transmission, and distribution of electrical energy; electrical transportation, communication, illumination, and manufacturing; and miscellaneous electrical applications in industry, commerce, and home life.

Electrical Engineering Curriculum		Semester	
<i>Sophomore Year</i>		I	II
Speech 5—Oral Technical English		2	—
Math. 23fs—Calculus		4	4
Phys. 2fs—General Physics		5	5
Surv. 1—Elements of Plane Surveying		1	—
Shop 2—Machine Shop Practice		1	—
E. E. 1fs—Direct-Current Theory		2	3
Mech. 1—Statics and Dynamics		—	3
Econ. 37—Fundamentals of Economics		—	3
M. I. 2fs—Basic R. O. T. C.		2	2
Non-Engineering Elective		3	—
		20	20
<i>Junior Year</i>			
Speech 6—Advanced Oral Technical English		—	2
Math. 64—Differential Equations for Engineers		3	—
Mech. 51—Strength of Materials		3	—
C. E. 51—Hydraulics		—	3
Mech. 52—Materials of Engineering		2	—
E. E. 52—Direct Current Machinery		3	—
E. E. 53—Electricity and Magnetism		4	—
E. E. 100—Engineering Electronics		—	4
E. E. 101—Alternating Current Circuits		—	6
*Non-Engineering Elective		3	3
Technical Society		—	—
		18	18

†Elective may be Advanced R. O. T. C., C. E. 106fs Thesis, with approval of head of department; a course in Bus. 71, Fundamentals of Business Administration, Bact. 70, Elements of Sanitary Bacteriology, or other approved courses.

*Advanced R. O. T. C. for qualified students, or other approved non-engineering course.

	Semester	
	I	II
<i>Senior Year</i>		
Speech 7fs—Advanced Oral Technical English.....	1	1
E. E. 102fs—Alternating-Current Machinery	5	5
E. E. 103fs—Radio Communications	3	3
†E. E. 104—Illumination	3	—
†E. E. 105—Electric Railways	3	—
†E. E. 107—Transmission Lines	3	—
†E. E. 108—Electric Transients.....	—	3
†E. E. 109—Advanced Alternating-Current Theory	—	3
M. E. 51—Thermodynamics	3	—
M. E. 52—Power Plants	—	3
‡Elective	3	3
Technical Society	—	—
	18	18

MECHANICAL ENGINEERING

Mechanical Engineering deals with the design, construction, and maintenance of machinery and power plants; heating, ventilation, and refrigeration; and the organization and operation of industrial plants.

Mechanical Engineering Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
Speech 5—Oral Technical English.....	2	—
Math. 23fs—Calculus	4	4
Phys. 2fs—General Physics	5	5
Dr. 3—Advanced Engineering Drawing.....	2	—
Surv. 1—Elements of Plane Surveying.....	—	1
Shop 3—Machine Shop Practice.....	2	—
Mech. 2—Statics and Dynamics	—	5
Econ. 37—Fundamentals of Economics.....	3	—
M. I. 2fs—Basic R. O. T. C.....	2	2
Non-Engineering Elective	—	3
	20	20

†Alternates.

‡Elective may be R. O. T. C.; E. E. 106fs Thesis, with approval of head of department; a course in O. and M. 110, Fundamentals of Business Administration; Engr. 100, Engineering Law and Specifications, or other approved course.

	Semester	
	I	II
<i>Junior Year—General</i>		
Speech 6—Advanced Oral Technical English.....	—	2
Math. 64—Differential Equations for Engineers.....	3	—
Mech. 50—Strength of Materials.....	5	—
C. E. 51—Hydraulics.....	—	3
Mech. 52—Materials of Engineering.....	—	2
E. E. 51fs—Principles of Electrical Engineering.....	4	4
Shop 50—Foundry Practice	1	—
Shop 51—Machine Shop Practice.....	—	1
M. E. 100fs—Thermodynamics	2	3
*Non-Engineering Elective	3	3
Technical Society	—	—
	18	18

Junior Year—Aeronautical Option

Speech 6—Advanced Oral Technical English.....	—	2
Math. 64—Differential Equations for Engineers.....	3	—
Mech. 50—Strength of Materials.....	5	—
Mech. 52—Materials of Engineering.....	—	2
Shop 50—Foundry Practice	1	—
Shop 51—Machine Shop Practice.....	—	1
E. E. 51fs—Principles of Electrical Engineering.....	4	4
M. E. 100fs—Thermodynamics	2	3
M. E. 53—Aerodynamics and Hydrodynamics.....	—	3
*Non-Engineering Elective	3	3
Technical Society	—	—
	18	18

Senior Year—General

Speech 7fs—Advanced Oral Technical English.....	1	1
M. E. 101—Heating and Ventilation.....	3	—
M. E. 102—Refrigeration	—	3
M. E. 103fs—Thesis	1	2
M. E. 104fs—Prime Movers	4	4
M. E. 105fs—Mechanical Engineering Design	4	3
M. E. 106fs—Mechanical Laboratory	2	2
†Elective	3	3
Technical Society	—	—
	18	18

*Advanced R. O. T. C. for qualified students, or other approved non-engineering course.

†Elective may be Advanced R. O. T. C., or other approved courses.

	Semester	
	I	II
Senior Year—Aeronautical Option		
Speech 7fs—Advanced Oral Technical English.....	1	1
M. E. 103fs—Thesis	1	2
M. E. 104fs—Prime Movers	4	4
M. E. 105fs—Mechanical Engineering Design	4	3
M. E. 106fs—Mechanical Laboratory	2	2
M. E. 107fs—Airplane Structures	3	3
Elective (Advanced R. O. T. C. or other approved course).....	3	3
Technical Society	—	—
	18	18

AGRICULTURE—ENGINEERING

A five-year combined program in Agriculture and Engineering, arranged jointly by the College of Agriculture and the College of Engineering, permits students to become candidates for the degree of Bachelor of Science in Agriculture at the end of four years and for the degree of Bachelor of Science in Civil, Electrical, Mechanical, or Chemical Engineering at the end of the fifth year.

Details of this program will be found listed in this catalog under College of Agriculture.

BUREAU OF MINES AND CHEMICAL ENGINEERING RESEARCH FELLOWSHIPS IN APPLIED SCIENCE AND ENGINEERING

The University of Maryland, in cooperation with the Bureau of Mines, offers fellowships for research in the field of engineering and applied sciences. Fellows enter upon their duties on July 1, and continue for 12 months, including one month for vacation. Payments under a fellowship are made at the end of each month, and amount to \$600 for the year. The University will remit payment of tuition fees, and will grant all fellowship privileges.

Fellows register as students in the Graduate School of the University of Maryland, and become candidates for the degree of Doctor of Philosophy. Class work will be directed by the heads of the departments of instruction, but about half of the time will be spent in research, under the direction of the Bureau of Mines staff.

Appropriate problems in physics, chemistry, chemical engineering, or mathematics will be chosen according to the abilities of the candidates and the interests of the Bureau Divisions. The faculty supervisor will be the Professor of Chemical Engineering of the University of Maryland.

The above fellowships will be known as Bureau of Mines Research Fellowships. The recipients will undertake the solution of definite problems confronting the mineral industries. The research will be performed at the Eastern Experiment Station of the Bureau of Mines, a large building

recently completed on the campus of the University of Maryland in College Park.

To encourage cooperation with the industries of Maryland and to develop research and instruction in Chemical Engineering, the University of Maryland will offer two fellowships in Chemical Engineering. These fellowships will pay a stipend of \$500 per year each, and will ordinarily require residence during the university year from September to June.

All the foregoing fellowships are open to graduates of universities and technical colleges who have the proper training in engineering or applied physical sciences, and who are qualified to undertake research work. Preference will be given to men who have already had one year of graduate work, and who have experience in research.

Applications should include a certified copy of college record, applicant's photograph, statement of technical and practical experience (if any), and letters from three persons, such as instructors or employers, covering specifically the applicant's character, ability, education, and experience. The application should be addressed to Fellowship Committee, Eastern Experiment Station, Bureau of Mines, United States Department of the Interior, College Park, Maryland.

STANTON WALKER FELLOWSHIP OF THE NATIONAL SAND AND GRAVEL ASSOCIATION RESEARCH FOUNDATION

The University of Maryland, in cooperation with the National Sand and Gravel Association, offers a fellowship for research on appropriate problems related to the sand and gravel industry. Fellows enter upon their duties on July 1, and continue for 12 months, including one month for vacation. Payments under the fellowship are made at the end of each month and amount to \$600 for the year.

Fellows register as students in the Graduate School of the University of Maryland. Class work will be directed by the heads of the departments of instruction, but about half of the time will be spent in research work. The faculty supervisor will be the Professor of Civil Engineering of the University of Maryland.

This fellowship is open to graduates in Engineering from an accredited college or university, who are qualified to undertake graduate study and research work leading to a Master's degree. Applications with a certified copy of college record, applicant's recent photograph, statement of technical and practical experience (if any), and letters from three persons, such as instructors or employers, covering specifically the applicant's character, ability, education, and experience.

The applications should be addressed: Dean, College of Engineering, University of Maryland, College Park, Md.

BUREAU OF MINES LECTURES

Under the auspices of the University of Maryland, the Bureau of Mines of the United States Department of the Interior, which maintains its Eastern Experiment Station on the campus at College Park, offers public lectures from time to time during the University year. The speakers are outstanding members of the staff of the Bureau, selected because of broad and varied experience in fields of wide technical and public interest, involving fundamental and pioneering research. Although the lectures are arranged in connection with the work of the University in chemical engineering, they cover a broad field of science, technology, and economics.

There is no charge for admission. The general public as well as the faculty and student body are cordially invited.

CIVILIAN PILOT TRAINING PROGRAM

In cooperation with the Civil Aeronautics Authority, the College of Engineering offers to qualified male students airplane pilot training courses, both elementary and secondary.

Elementary Course, 4 credits.—Prerequisites (subject to change each semester as specified by the C. A. A.): (a) Age limits, 18 to 25; (b) scholastic attainment, 15 or more college credit hours completed, if registered for 15 additional credit hours; (c) must be an American citizen; (d) must pass a physical examination as required by the U. S. Army Air Corps, or by Naval Aviation.

Undergraduates at the University registering for this course must have the approval of their Dean, who also determines whether C. A. A. credit will be accepted for electives in the student's course.

This course is open without credit to qualified students not registered at the University.

The student is required to sign an affidavit that he will continue his flight training in the Army or the Navy.

Expenses for the course are: physical examination, \$12; insurance, \$7; and enrollment fee, \$10. According to present regulations, the medical fee and the insurance fee are refunded to the student before the completion of the course.

The course consists of 72 hours of ground school work and 35 to 50 hours of flight training. Upon completion of the course, a private pilot's license is awarded the student.

Secondary Course, 6 credits.—Prerequisites (subject to change each semester as specified by the C. A. A.): (a) age limits, 18 to 25; (b) scholastic attainment, 45 or more credit hours completed, if registered for 15 additional credit hours; (c) must be an American citizen; (d) must pass physical examination as required by U. S. Army Air Corps, or by Naval Aviation; (e) must have successfully completed the elementary course.

Undergraduates at the University registering for this course must have the approval of their Dean, who also determines whether C. A. A. credit will be accepted for electives in the student's course.

The student is required to sign an affidavit that he will continue his flight training in the Army or the Navy.

Expenses for the course are: physical examination, \$12; insurance, \$9; and enrollment fee, \$10. According to present regulations, the medical fee and the insurance fee are refunded to the student before the completion of the course.

The course consists of 108 hours of ground school work and 50 hours of flight training. Upon completion of the course, a restricted-commercial pilot's license is awarded the student.

Additional information may be obtained from Dr. J. E. Younger, Coordinator, Civilian Pilot Training Program.

PROGRAM LEADING TO A COMMISSION IN THE U. S. NAVAL RESERVE

Under the provisions of the Naval Reserve Act of 1938, a class of enlisted men in the Naval Reserve, designated as V-7, has been established leading to a Commission in the U. S. Naval Reserve. Students selected will remain in college until they receive their degrees. The following are the special requirements under this program.

Engineering students. Seniors and juniors in the College of Engineering who meet the physical and other special requirements, are eligible for appointment to probationary commissions. They will be permitted to complete their college course before being sent to active duty in their own specialized fields. No courses other than the regular engineering courses are required, though it is recommended that the courses listed in the following paragraphs be taken as electives where possible.

Other students. Seniors and juniors in other than the College of Engineering who meet the physical and other requirements, must before graduation have received credit in at least two one-semester courses in mathematics of college grade and submit college credit for a course in plane trigonometry. The following courses meet these requirements in mathematics:

Math. 3—Plane and Spherical Trigonometry, 1, 2 or 3 credits.

Math. 21—College Algebra and Plane Trigonometry, 4 credits.

The following courses are also recommended for those planning to enter the U. S. Naval Reserve:

Math. 4—Spherical Trigonometry and Navigation, 3 credits.

Hist. 129—American Naval History, pro-seminar, 2 credits.

Additional information may be obtained from Dean S. S. Steinberg, College of Engineering.

ENGINEERING, SCIENCE AND MANAGEMENT DEFENSE TRAINING

The College of Engineering is offering, in cooperation with the U. S. Office of Education, specialized training in engineering, science and management courses essential to the national defense. These courses are designed to train men and women now employed in defense industries for more responsible positions, and to train others who desire to enter defense work. This training is also available for personnel of the Army and the Navy.

The courses under this program are chiefly part-time evening courses in the fields of aeronautics, radio, drawing, mapping, metallurgy, testing, and industrial safety. Additional courses may be organized as the demands of industry or the armed forces require.

The instruction is given by members of the faculty of the College of Engineering and by specialists from industry.

Qualifications for Admission. Since all courses under this program are of college grade, the minimum requisite for admission is high school graduation. In certain courses additional qualifications may be required to carry on successfully the work outlined.

Cost. There is no charge to the students for tuition for these courses; but each student is required to bear his own living expenses and to furnish his own text books, drawing instruments and such other supplies as may be required.

Training Centers. To meet the need of the defense industries in Maryland and vicinity, training centers have been established at College Park, Baltimore, Hagerstown, and Washington, D. C. Additional centers may be established as the need arises.

Certificate. Since the primary purpose of this training is specialized preparation for national defense, no college credit will be given for these courses. However, a certificate will be awarded each student who successfully completes a full course.

Employment. The College of Engineering cannot guarantee positions to those completing the courses, but every effort is made to place the men so trained.

Additional information may be obtained from Dean S. S. Steinberg, College of Engineering.

ENGINEERING SHORT COURSES

Through short courses, the College of Engineering carries the benefits of engineering teaching to persons and industries in various parts of the State. These courses offer, in addition to regular instruction, an opportunity for the discussion of problems of interest to those engaged in public works, in public health and in public safety.

Mining Extension Classes. In cooperation with the Maryland Bureau of Mines and the State Departments of Education of Allegany and Garrett Counties, night mining classes are conducted throughout the year in several training centers in the western part of the State. The subjects studied are coal mine gases, coal mine ventilation, map reading, and mine safety.

Volunteer Firemen's Short Course. In cooperation with the Maryland State Firemen's Association a short course is held annually at College Park for volunteer firemen throughout the State. This four-day course is designed to bring to firemen the newest developments in fire prevention, control and extinguishment, as well as information on inspection, arson investigation and equipment maintenance.

Information regarding fire service extension courses may be found under "Fire Service Extension Department."

Highway Engineering Short Course. In cooperation with the Maryland State Roads Commission a highway engineering short course is held annually at College Park for the engineers and inspectors of the Commission. The purpose of this course is to discuss highway engineering developments during the previous year, and to afford an opportunity for conference and coordination of construction and maintenance procedures as carried on throughout the State.

Sanitary Engineering Short Course. This course is held biennially at College Park in cooperation with the Maryland Department of Health, the Maryland-Delaware Water and Sewerage Association and the American Water Works Association. The course serves to acquaint the operators of water and sewerage treatment plants with the latest developments in these important fields.

Traffic Officers' Training School. This course is offered through the joint cooperation of the International Association of Chiefs of Police, the American Automobile Association, and the automobile clubs of Maryland. It deals with the best methods of prevention, control and investigation of highway traffic accidents. The course is designed primarily for the traffic officers of the Maryland State Police Department and the police departments of the cities and counties of Maryland.

Additional information regarding engineering short courses may be obtained from Dean S. S. Steinberg, College of Engineering.

FIRE SERVICE EXTENSION DEPARTMENT

The Fire Service Extension Department is organized under the College of Engineering in cooperation with the State Department of Vocational Education, and operates with both Federal and State funds. The Department provides in-service training for firemen with classes conducted throughout the State by three regional instructors and about 50 local instructors. Basic training of 75 clock hours is given in the fundamentals

of firemanship, as well as an advanced course of 69 clock hours, covering the technical field of fire prevention, control and extinguishment. A training course of 45 clock hours for industrial plant fire brigades is also available. Firemen who have completed the prescribed training courses have been given preferential rating in positions in the military and naval fire fighting forces.

To meet the demands of the national emergency, the Department has expanded its activities to the training of auxiliary fire forces and rescue units in defense duties. There is also available a comprehensive training course of 24 clock hours in connection with incendiaries, war gases, infernal machines, sabotage and fire fighting as applied to military explosives and ammunition, that is available for all civilian defense groups.

The Department also serves in an advisory capacity to the State Fire Marshal and municipal authorities in matters of fire prevention, fire protection engineering, and fire safety regulations.

Additional information may be obtained from Chief J. W. Just, Director, Fire Service Extension Department, University of Maryland, College Park, Maryland.

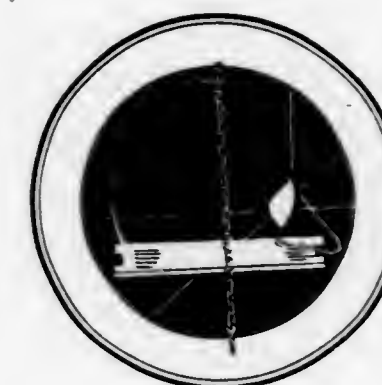
ENGINEERING EXPERIMENT STATION

WILBERT J. HUFF, *Director.*

The Engineering Experiment Station carries on cooperative investigations with industries of Maryland and Departments of the State and Federal Governments. A diversity of engineering training, experience, and equipment represented by the staff and laboratories of the College of Engineering is thus made available for the problems under inquiry.

Among the researches at present being carried on are studies on (1) streamlined steel tubes under loading conditions; (2) high speed wings for airplanes; (3) eccentric rivet groups; (4) D tube sections under various loading conditions; (5) expansion joints for concrete roads; (6) the design of concrete culverts; (7) the conversion of petroleum products to aromatic hydrocarbons; (8) sabotage by explosives; (9) magnetic properties of special alloys. Recently completed reports have involved topics such as (a) the action of manufactured gas on ceramic ware, (b) the fluid characteristics of bentonite suspensions, (c) the ferro-magnetic properties of hematite, (d) the separation and estimation of the four general classes of hydrocarbons occurring in the gasoline range of petroleum.

COLLEGE OF HOME ECONOMICS



*"The strength of a nation . .
is in the intelligent and well-
ordered homes of the people."*

—Lyda Sigourney.

COLLEGE OF HOME ECONOMICS

M. MARIE MOUNT, *Dean.*

The College of Home Economics serves Maryland and the surrounding area with its educational program for young women. This program combines good personal development with education for homemaking and for a livelihood. Information on better health principles, good study habits, efficient use of time, good grooming, becoming dress and proper adjustment to new situations constitute the student's program for self-development.

In the professional phases of her program, the student advises with members of the faculty and with women well-known in home economics who aid her in choosing the particular curriculum in which she expects to specialize.

The student is urged to acquire practical experience during vacations. This might begin with the actual management of her family's home for a period of time. Students preparing to teach gain experience on playgrounds in caring for children and in executing home projects. Commercial firms and institutions provide opportunities for other types of experience.

Organization

For administrative purposes the College of Home Economics is organized into the Departments of Textiles and Clothing, Practical Art, Home and Institution Management, and Foods and Nutrition.

Facilities

The home of the College of Home Economics, following campus tradition, is a new colonial brick building planned and built to present the best equipment and facilities for education in home economics. A home management house is maintained on the campus for experience in homemaking.

Located, as the campus is, between two large cities, unusual opportunities are afforded for both faculty and students. In addition to the University's excellent general and specialized libraries, Baltimore and Washington furnish the added library facilities so essential to scientific research and creative work in the arts. The art galleries and museums with their priceless exhibits, the government bureaus and city institutions, stimulate study and provide practical experience for the home economics student.

Professional Organizations

The Home Economics Club, in which membership is open to all home economics students, is affiliated with the American Home Economics Association.

Omicron Nu, a national home economics honor society, established Alpha Zeta chapter at the University of Maryland, November, 1937. Students of high scholarship may be elected to membership.

COLLEGE OF HOME ECONOMICS

Degree

The degree of Bachelor of Science is conferred for the satisfactory completion of 128 semester hours of courses, as prescribed in any of the following curricula.

Curricula

At the close of the freshman year a student may elect the curriculum in general home economics which is non-professional, or one of the following professional curricula, or a combination of curricula: home economics education, textiles and clothing, practical art, home economics extension, institution management and foods and nutrition. A student who wishes to teach home economics may register in home economics education in the College of Home Economics, or in the College of Education (see home economics education).

The student who has not decided to specialize at the close of the freshman year may follow the general home economics curriculum until she makes a choice. Before continuing with the third year of any curriculum, the student must have attained junior standing: 64 credit hours with a C grade average.

Home Economics Curriculum	Semester	
	I	II
<i>Freshman Year</i> —Alike for all home economics curricula	3	3
Eng. 1fs—Survey and Composition.....	—	—
*Chem. 1fs or 3fs—General Chemistry, or Introductory Chemistry	4-3	4-3
H. E. 15—Textiles.....	3	—
H. E. 21—Design.....	—	3
Speech 1fs—Public Speaking.....	1	1
H. E. 1fs—Home Economics Lectures.....	1	1
Phys. Ed. 2fs—Personal Hygiene.....	1/2	1/2
Phys. Ed. 4fs—Physical Activities.....	1/2	1/2
†Physics 3fs—Introductory Physics, or elective.....	3-2	3-2
	15-16	15-16

The General Home Economics curriculum is non-professional. It is planned to give a young woman a good basis for her best personal development, as has been described earlier. It also provides good training for her as a future home maker.

*Chem. 1fs is required for all curricula with the exception of General Home Economics and Practical Art.

†Physics 3fs may be taken during either the freshman or sophomore year.

General Home Economics Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
H. E. 24—Costume Design.....	3	—
H. E. 11—Clothing	—	3
H. E. 31fs—Foods	3	3
Soc. 3—Introduction to Sociology.....	—	3
‡Psych. 1—Introduction to Psychology.....	3	—
Econ. 37—Fundamentals of Economics.....	3	—
Phys. Ed. 6fs—Community Hygiene.....	1	1
Phys. Ed. 8fs—Physical Activities.....	1	1
Zool. 16—Human Physiology.....	—	3
Electives	3	3
	17	17
<i>Junior Year</i>		
H. E. 32—Elements of Nutrition.....	3	—
or		
H. E. 131—Nutrition	3	—
H. E. 137—Food Buying and Meal Service.....	—	3
H. E. 141, 142—Management of the Home.....	3	3
H. E. 111—Advanced Clothing	3	—
Bact. 50—Household Bacteriology.....	—	3
H. E. 121, 122—Interior Design.....	3	3
Electives	4-5	4-5
	16-17	16-17
<i>Senior Year</i>		
H. E. Ed. 102—Child Study.....	3	—
H. E. 143—Practice in Management of the Home.....	—	3
Electives	12	12
	15	15

Home Economics Education Curriculum

(See College of Education Page 154)

TEXTILES AND CLOTHING

This curriculum is planned for the young woman who wants more than a general knowledge of textiles and clothing for her personal use, or as a potential home maker. Its principal purpose is professional: to prepare young women as teachers of textiles and clothing, as research workers or as specialists in textile testing with government agencies or commercial firms. The student electing this curriculum has an opportunity for much

‡Educational Psychology, Psych. 55, may be substituted for Psych. 1, in the junior year.

creative work in textiles and clothing, design, and for many contacts with professional persons interested in these lines of work.

Textiles and Clothing Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
H. E. 24—Costume Design	3	—
H. E. 11—Clothing	—	3
H. E. 31fs—Foods	3	3
H. E. 31fs—Foods	2	2
Chem. 12Afs—Organic Chemistry.....	1	1
Chem. 12Bfs—Organic Chemistry Laboratory.....	3	—
Psych. 1—Introduction to Psychology.....	3	—
Econ. 37—Fundamentals of Economics.....	—	3
Zool. 16—Human Physiology.....	1	1
Phys. Ed. 6fs—Community Hygiene.....	1	1
Phys. Ed. 8fs—Physical Activities.....	—	3
Soc. 3—Introduction to Sociology.....	—	—
	17	17
<i>Junior Year</i>		
H. E. 111—Advanced Clothing	—	3
H. E. 171—Advanced Textiles	—	3
Chem. 14—Chemistry of Textiles (Every other year).....	—	3
Chem. 14—Chemistry of Textiles (Every other year).....	3	—
H. E. 131—Nutrition	3	3
H. E. 141, 142—Management of the Home.....	3	—
H. E. 121—Interior Design	—	3
H. E. 137—Food Buying and Meal Service.....	—	3
or		
H. E. 122—Interior Design	3	—
Stat. 14—Elements of Statistics.....	3	3
Phys. —Advanced Physics.....	—	3
or		
Bact. 50—Household Bacteriology.....	3-6	—
Electives	—	—
	18	18
<i>Senior Year</i>		
H. E. 113—Pattern Design.....	2	—
H. E. 112—Problems in Clothing.....	—	3
H. E. 172—Problems in Textiles	3	—
H. E. 172—Problems in Textiles	—	3
H. E. 143—Practice in Management of the Home.....	3	—
H. E. Ed. 102—Child Study.....	3	—
Speech 101—Introduction to Radio.....	4	9
Electives	—	—
	15	15

PRACTICAL ART

This curriculum permits a choice of two fields of concentration: interior design and costume design. Emphasis is given to the selection of house furnishings and wearing apparel with relation to personality. Positions available to graduates begin with selling, display, comparison shopping, textile analysis, and radio work; they develop into advanced positions in these fields or in departmental buying, department managing, style coordination, personality consulting, designing, advertising, and training and personnel work.

Practical Art Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
H. E. 24—Costume Design	3	—
H. E. 11—Clothing	—	3
H. E. 31fs—Foods	3	3
Soc. 3—Introduction to Sociology	—	3
Econ. 37—Fundamentals of Economics	3	—
Phys. Ed. 6fs—Community Hygiene	1	1
Phys. Ed. 8fs—Physical Activities	1	1
Psych. 3—Applied Psychology II	—	3
H. E. 32—Elements of Nutrition	3	—
Modern Language	3	3
	—	—
	17	17
<i>Junior Year</i>		
H. E. 121, 122—Interior Design	3	3
Jour. 15—Graphic Design	2	2
Jour. 1—Introduction to Journalism	3	3
Mkt. 101—Principles of Marketing	3	—
Mkt. 119—Retail Store Management and Merchandising	—	3
H. E. 111—Advanced Clothing	—	3
H. E. 141, 142—Management of the Home	3	3
Electives	3	—
	—	—
	17	17
<i>Senior Year</i>		

Note: The fall semester is composed entirely of courses in the College of Home Economics. This permits one month of experience in a specified department store.

	Semester	
	I	II
For majors in interior design		
H. E. 123, 124—Advanced Interior Design	2	2
H. E. 120—Advertising Layout and Store Coordination	2	—
H. E. 125—Merchandise Display	2	—
H. E. 126—Store Experience	3	—
H. E. 129—Radio in Retailing	—	3
H. E. 170—Consumer Problems in Textiles	3	—
H. E. 137—Food Buying and Meal Service	—	3
H. E. 143—Practice in Management of the Home	3	—
H. E. Ed. 102s—Child Study	—	3
Elective	—	4
	15	15

For majors in costume design

H. E. 127, 128—Advanced Costume Design	2	2
H. E. 120—Advertising Layout and Store Coordination	2	—
H. E. 125—Merchandise Display	2	—
H. E. 126—Store Experience	3	—
H. E. 129—Radio in Retailing	—	3
H. E. 170—Consumer Problems in Textiles	3	—
H. E. 113—Pattern Design	2	—
H. E. 143—Practice in Management of the Home	3	—
H. E. Ed. 102—Child Study	—	3
Elective	—	5
	17	13

For majors in both interior and costume design

H. E. 123, 124—Advanced Interior Design	2	2
H. E. 127, 128—Advanced Costume Design	2	2
H. E. 120—Advertising Layout and Store Coordination	2	—
H. E. 125—Merchandise Display	2	—
H. E. 126—Store Experience	3	—
H. E. 129—Radio in Retailing	—	3
H. E. 170—Consumer Problems in Textiles	3	—
H. E. 143—Practice in Management of the Home	3	—
H. E. Ed. 102—Child Study	—	3
Elective	—	3
	17	13

HOME ECONOMICS EXTENSION

This curriculum outlines the training necessary for the young woman who wishes to work with rural people through a State Extension Service, The Farm Security, Rural Electrification Administration, or other agencies interested in the education and social problems of rural living.

Home Economics Extension Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
H. E. 24—Costume Design	3	—
H. E. 11—Clothing	—	3
H. E. 31fs—Foods	3	3
Soc. 3—Introduction to Sociology	—	3
Econ. 37—Fundamentals of Economics	3	—
Phys. Ed. 6fs—Community Hygiene	1	1
Phys. Ed. 8fs—Physical Activities	1	1
Zool. 16—Human Physiology	—	3
Electives	6	3
	17	17
<i>Junior Year</i>		
H. E. 131—Nutrition	3	—
H. E. 132—Dietetics	—	3
H. E. 141, 142—Management of the Home	3	3
H. E. 111—Advanced Clothing	3	—
Bact. 50—Household Bacteriology	—	3
Psych. 55—Educational Psychology	3	—
H. E. Ed. 101—Curriculum, Instruction, and Observation	—	3
H. E. 133—Demonstrations	2	—
H. E. 137—Food Buying and Meal Service	—	3
H. E. 121, 122—Interior Design	3	3
	17	18
<i>Senior Year</i>		
H. E. Ed. 102—Child Study	3	—
H. E. 143—Practice in Management of the Home	3	—
Psych. 130—Mental Hygiene	—	3
H. E. 151—Methods in Home Economics Extension	—	3
R. Ed. 110—Rural Life and Education	—	3
*Electives	9	6
	15	15

*Electives in Government, Gardening, Poultry Husbandry, and Sociology are recommended.

INSTITUTION MANAGEMENT

The Institution Management Curriculum provides training for those students interested in the housing and the food service administration for large groups of persons. This work divides generally into two types: food service or housekeeping in such institutions as hospitals and schools and in commercial organizations such as restaurants, cafeterias, inns and hotels. Training for a hospital dietitian requires one year of graduate study in a hospital offering a course approved by the American Dietetic Association. The Institution Management Curriculum meets the academic requirements for entrance to such a course. A student planning to do institutional work other than hospital dietetics is not required to take Curriculum, Instruction, and Observation (H. E. Ed. 101s) and Diet in Disease (H. E. 138s.)

Institution Management Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
H. E. 24—Costume Design	3	—
H. E. 11—Clothing	—	3
Chem. 12Afs—Organic Chemistry	2	2
Chem. 12Bfs—Organic Chemistry Laboratory	1	1
H. E. 31fs—Foods	3	3
Soc. 3—Introduction to Sociology	—	3
Econ. 37—Fundamentals of Economics	3	—
Zool. 16—Human Physiology	—	3
Phys. Ed. 6fs—Community Hygiene	1	1
Phys. Ed. 8fs—Physical Activities	1	1
Electives	3	—
	17	17
<i>Junior Year</i>		
Chem. 50A—General Physiological Chemistry	2	—
Chem. 50B—General Physiological Chemistry Laboratory	2	—
Bact. 50—Household Bacteriology	—	3
H. E. 131—Nutrition	3	—
H. E. 132—Dietetics	—	3
H. E. 141, 142—Management of the Home	3	3
H. E. 144fs—Institution Management	3	3
H. E. Ed. 101—Curriculum, Instruction, and Observation	—	3
H. E. 137—Food Buying and Meal Service	—	3
Psych. 55—Educational Psychology	3	—
	16	18

	Semester	
	I	II
<i>Senior Year</i>		
H. E. 143—Practice in Management of the Home.....	—	3
H. E. Ed. 102—Child Study	3	—
H. E. 135—Experimental Foods	4	—
H. E. 146—Advanced Institution Management.....	—	3
H. E. 147—Institution Cookery.....	3	—
H. E. 121, 122—Interior Design.....	3	3
Psych. 130—Mental Hygiene.....	—	3
H. E. 138—Diet in Disease	—	3
Electives	2	—
	15	15

FOODS AND NUTRITION

If our country is to meet, successfully, the demands made by war, our people must be strong. This means that the great amount of mal-nutrition now existing must be decreased to a minimum. To do this, many of our food habits must be changed; and better use made of scientific knowledge in the planning, purchasing, preparing and serving of food.

The first purpose of the Foods and Nutrition Curriculum is to teach each young woman the daily use of scientific information in the choice of food, now for herself, and in the future for her family. The second purpose is professional; there are many positions in foods and nutrition research with government and state agencies and with commercial organizations. As the National Nutrition Program gets under way, the number of such positions is increasing. Newspapers, magazines for home makers, and radio stations employ home economists with special training in foods and nutrition.

Foods and Nutrition Curriculum

	Semester	
	I	II
<i>Sophomore Year</i>		
H. E. 24—Costume Design.....	3	—
H. E. 11—Clothing	—	3
Chem. 12Afs—Organic Chemistry.....	2	2
Chem. 12Bfs—Organic Chemistry Laboratory.....	1	1
H. E. 31fs—Foods	3	3
*Psych. 1—Introduction to Psychology.....	3	—
Soc. 3—Introduction to Sociology.....	—	3
Econ. 37—Fundamentals of Economics.....	3	—
Zool. 16—Human Physiology.....	—	3
Phys. Ed. 6fs—Community Hygiene.....	1	1
Phys. Ed. 8fs—Physical Activities.....	1	1
	17	17

*Ed. Psych. 10 may be substituted for Psych. 1, in junior year.

	Semester	
	I	II
<i>Junior Year</i>		
Chem. 50A—General Physiological Chemistry.....	2	—
Chem. 50B—General Physiological Chemistry Laboratory.....	2	—
H. E. 131—Nutrition	3	—
H. E. 132—Dietetics	—	3
H. E. 141, 142—Management of the Home.....	3	3
Bact. 50—Household Bacteriology.....	—	3
H. E. 137—Food Buying and Meal Service.....	—	3
H. E. 121, 122—Interior Design.....	3	3
Electives	4	2
	17	17

Senior Year

H. E. Ed 102—Child Study.....	3	—
H. E. 143—Practice in Management of the Home.....	—	3
H. E. 135—Experimental Foods.....	4	—
H. E. 133—Demonstrations	—	2
H. E. 134—Advanced Foods.....	—	3
Electives	8	7
	15	15

DEPARTMENT OF MILITARY
SCIENCE AND TACTICS



*"Duty, then, is the sublimest
word in our language."*

—General Robert E. Lee.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS

Personnel 1941-1942

COLONEL ROBERT E. WYSOR, JR., Commandant
 LIEUTENANT COLONEL H. C. GRISWOLD, Instructor—Senior Class
 MAJOR PAUL M. ELLIS, Drill Supervisor
 CAPTAIN EDWARD F. QUINN, Instructor—Sophomore Class
 CAPTAIN RALPH I. WILLIAMS, Adjutant
 LIEUTENANT GORDON L. JUDD, Instructor—Junior Class
 LIEUTENANT ROBERT W. JONES, Assistant Instructor—Freshman Class
 LIEUTENANT HAROLD L. KELLY, JR., Assistant Instructor—Sophomore Class
 LIEUTENANT W. R. BEALL, Assistant Instructor—Freshman Class
 SERGEANT EDWARD MARS, Assistant
 SERGEANT GEORGE E. MARTIN, Assistant
 SERGEANT F. J. NORRIS, Assistant
 SERGEANT C. J. UHRINAK, Assistant
 SERGEANT OTTO SEIBENEICHEN, Band Leader
 CAPTAIN GERMAN V. RICE, Military Property Custodian
 MRS. BERTHA B. WHITE, Secretary to Commandant

GENERAL

Instruction in Military Science and Tactics has been an important feature of the work of the College Park Division of the University of Maryland since 1856. Until 1916 the institution was a military school, and since that time, military instruction has been a required course for all physically fit freshman and sophomore male students.

The United States Government maintains at the University of Maryland, at College Park, a Senior Infantry Unit designated as the Reserve Officers' Training Corps. Instruction is given by Regular or Reserve Army officers detailed by the War Department for this purpose, and the War Department also supplies necessary equipment to give the students enrolled in the course a practical working knowledge of military materials and methods.

The Reserve Officers' Training Corps was established at the University under the provisions of the Act of Congress of June 3, 1916, as amended. The instructional work is based on the provisions of Army Regulations No. 145-10.

The unit is organized as a regiment of four battalions of three rifle companies each, and a band. All units are commanded by Advanced Course students, who have been selected for these commands on a basis of merit.

The complete military course covers eight semesters and is divided into two phases, the Basic Course and the Advanced Course.

The Basic Course is compulsory during freshman and sophomore periods for those students less than 26 years of age and who are physically fit. Its object is to qualify students for effective military service.

The Advanced Course is an elective course. Based on War Department allotments, the Military Department selects from the Second Year Basic

Course Students a certain number for the First Year Advanced Course. These students must have junior standing and are required to sign a contract obligating themselves to complete the Advanced Course. All Advanced Course students are paid, at present, 25 cents per day and, in addition, they receive a uniform allowance. Upon completion of the course, those who are 18 years of age and otherwise qualified will be commissioned as second lieutenants in the Army Reserve Corps.

Credit for Previous R. O. T. C. Training—Students who are *graduates* of class MS schools which are rated as "Honor Schools" by the War Department, will receive credit for the First Year Basic Course, and will be required to complete the Basic Course in their sophomore year.

Uniforms

Members of the Basic Courses are issued uniforms without cost to the student. Shoes of a type *specified by the Military Department* must be purchased.

The Advanced Course student receives a total uniform allowance of \$36.00. Any difference in the allowance and the cost of uniform is borne by the student.

REGIMENTAL ORGANIZATION, RESERVE OFFICERS' TRAINING CORPS, 1941-1942.

Regimental Commander	Colonel James E. Dunn
Regimental Executive (Acting)	Lieut. Col. Neal Dow, Jr.
Regimental Adjutant	Major William A. Holbrook
Regimental Plans and Training	Captain J. C. Bray
Battalion Commander, 1st Battalion	Lieut. Col. James H. Wharton
Executive Officer, 1st Battalion	Capt. Theodore J. Stell
Adjutant, 1st Battalion	1st Lt. George L. Wannall
Battalion Supply Officer	2nd Lt. Samuel L. Pfefferkorn
Company Commander, Company "A"	Capt. Samuel V. Moore
Leader, 1st Platoon	1st Lt. Robert W. Russell
Leader, 2nd Platoon	2nd Lt. Philip C. Heath
Leader, Third Platoon	2nd Lt. Roy K. Skipton
Unassigned	2nd Lt. James E. Malcolm
Company Commander, Company "B"	Capt. Thomas M. Fields
Leader, 1st Platoon	1st Lt. M. Gist Welling
Leader, 2nd Platoon	2nd Lt. William A. McGregor
Leader, Third Platoon	2nd Lt. Donald R. Magruder
Unassigned	2nd Lt. Robert S. Insley
Company Commander, Company "C"	Capt. Walter J. Kerwin
Leader, 1st Platoon	1st Lt. Fred C. Hicks
Leader, 2nd Platoon	2nd Lt. Daniel L. Gendason
Leader, Third Platoon	2nd Lt. Merle D. DuVall
Unassigned	2nd Lt. Frank G. Carpenter

Battalion Commander, 2nd Battalion.....	Lt. Col. Louis M. Tierney
Executive Officer, 2nd Battalion.....	Capt. Harold E. Earp
Adjutant, 2nd Battalion.....	1st Lt. John L. Scott
Battalion Supply Officer.....	2nd Lt. George C. Pendleton
Company Commander, Company "D".....	Capt. John F. Curtin
Leader, 1st Platoon.....	1st Lt. Thomas C. Galbreath
Leader, 2nd Platoon.....	2nd Lt. Randall C. Cronin
Leader, Third Platoon.....	2nd Lt. Harry A. Boswell
Unassigned.....	2nd Lt. Robert C. Henry
Company Commander, Company "E".....	Capt. Lawrence MacKenzie
Leader, 1st Platoon.....	1st Lt. Arthur H. Valentine
Leader, 2nd Platoon.....	2nd Lt. Robert E. Stalcup
Leader, Third Platoon.....	2nd Lt. Paul B. Hutson
Company Commander, Company "F".....	Capt. Orville C. Shirey
Leader, 1st Platoon.....	1st Lt. Bruce A. Douglas
Leader, 2nd Platoon.....	2nd Lt. Joseph L. Gude
Leader, 3rd Platoon.....	2nd Lt. Harry Rimmer
Unassigned.....	2nd Lt. Rodney L. Boyer
Battalion Commander, 3rd Battalion.....	Lt. Col. J. Paul McNeil
Executive Officer, 3rd Battalion.....	Capt. Frank L. Bentz
Adjutant, 3rd Battalion.....	1st Lt. William R. Tilley
Battalion Supply Officer.....	2nd Lt. H. Henry Spicer
Company Commander, Company "G".....	Capt. Vincen J. Hughes
Leader, 1st Platoon.....	1st Lt. Robert L. Dorn
Leader, 2nd Platoon.....	2nd Lt. Warrent F. Vandervort
Leader, 3rd Platoon.....	2nd Lt. Vernon L. McKinsty
Company Commander, Company "H".....	Capt. Theodore E. Fletcher
Leader, 1st Platoon.....	1st Lt. Lloyd G. Huggins
Leader, 2nd Platoon.....	2nd Lt. Robert B. Ziegele
Leader, 3rd Platoon.....	2nd Lt. James A. Hambleton
Unassigned.....	2nd Lt. Charles R. Jubb
Company Commander, Company "I".....	Capt. Gerald E. Prentice
Leader, 1st Platoon.....	1st Lt. William R. Maslin
Leader, 2nd Platoon.....	2nd Lt. Thomas T. Witkowski
Leader, 3rd Platoon.....	2nd Lt. Tarleton S. Bean
Battalion Commander, 4th Battalion.....	Lt. Col. Robert H. Smith
Executive Officer, 4th Battalion.....	Capt. Jeremiah C. Hege
Adjutant, 4th Battalion.....	1st Lt. Charles R. Beaumont
Battalion Supply Officer.....	2nd Lt. W. Kingsley Grigg
Company Commander, Company "K".....	Capt. Theodore M. Vial
Leader, 1st Platoon.....	1st Lt. William T. Riley
Leader, 2nd Platoon.....	2nd Lt. Charles A. Rausch
Leader, 3rd Platoon.....	2nd Lt. Hugh M. Walton

Company Commander, Company "L".....	Capt. Robert D. Hall
Leader, 1st Platoon.....	1st Lt. Frank S. Reid
Leader, 2nd Platoon.....	2nd Lt. J. D. Eyler
Leader, 3rd Platoon.....	2nd Lt. Robert D. Condon
Unassigned.....	2nd Lt. Charles B. Raymond
Company Commander, Company "M".....	Capt. William H. Schoenhaar
Leader, 1st Platoon.....	1st Lt. Isadore H. Alperstein
Leader, 2nd Platoon.....	2nd Lt. Joseph A. Sirkis
Leader, 3rd Platoon.....	2nd Lt. George R. Cook
Unassigned.....	2nd Lt. Howard M. Trussell
Commanding Officer, ROTC Band.....	Capt. Edward H. Price

NOTE: All Second Lieutenants who are designated as unassigned with companies will perform such duty as may be directed by the Company Commander.

DEPARTMENT OF PHYSICAL EDUCATION, RECREATION, AND ATHLETICS

The purpose of the program of physical education at the University is broadly conceived as the development of the individual student. To accomplish this purpose, physical examinations and classification tests are given the incoming students to determine the relative physical fitness of each. Upon the basis of the needs disclosed by these tests, and individual preferences, students are assigned to the various activities of the program.

For Men

Freshmen and sophomores assigned to physical education take three activity classes each week throughout the year. In the fall, soccer, touch football, and tennis are the chief activities; in the winter, basketball, volleyball, and other team games; and in the spring, track, baseball, and tennis. In addition to these team activities, sophomore students may elect a considerable number of individual sports, such as fencing, boxing, wrestling, horseshoes, ping pong, bag punching, badminton, shuffleboard, and the like.

An adequate program of intramural sports is conducted also. Touch football and soccer in the fall, basketball and volleyball in the winter, baseball and track in the spring, are the chief activities in this program. Plaques, medals, and other appropriate awards in all tournaments of the program are provided for the winning teams and individual members.

Every afternoon of the school session the facilities of the Physical Education Department are thrown open to all students for free unorganized recreation. Touch football, soccer, basketball, basket shooting, apparatus work, fencing, boxing, wrestling, bag punching, tennis, badminton, and ping pong are the most popular contests engaged in.

The University is particularly fortunate in its possession of excellent facilities for carrying on the activities of the program of physical education. Two large modern gymnasias, a new field house, a number of athletic fields,

tennis courts, baseball diamonds, running tracks, and the like, constitute the major part of the equipment.

In addition to the activities described above, the University sponsors a full program of intercollegiate athletics for men. Competition is promoted in varsity and freshman football, basketball, baseball, track, boxing, lacrosse, soccer, wrestling, golf, and tennis. The University is a member of the Southern Conference, the National Collegiate Athletic Association, and cooperates with other national organizations in the promotion of amateur athletics.

For Women

The Department of Physical Education for Women has excellent facilities for conducting a full activities program. Seasonal team sports including hockey, soccer, speedball, basketball, volleyball, softball; individual sports, consisting of riding, tennis, badminton, fencing, golf, archery, deck tennis, table tennis, and the like, are offered. Opportunity is given for various types of dancing including, modern, square, folk, and ballroom. The proximity of the University to Washington and Baltimore provides excellent opportunity for groups to attend professional programs in dance.

The Women's Athletic Association sponsors and conducts intramural tournaments in the seasonal sports, sports days with neighboring colleges, and intercollegiate competition in rifle shooting.

The University also maintains curricula designed to train men and women students to teach physical education and coach in the high schools of the state, and to act as leaders in recreational programs in communities.

For a description of the courses in Physical Education, see College of Education, and Courses of Instruction.

This department now is being reorganized with a view to adapting its broad program to war conditions and necessities.

GRADUATE SCHOOL



*If we limit the search for
truth, and forbid men anywhere,
in any way, to seek knowledge,
we strike at the vital force of
truth itself."*

—Phillips Brooks.

THE GRADUATE SCHOOL

C. O. APPELMAN, *Dean*.

ELSIE M. PARRETT, *Secretary to Dean*.

THE GRADUATE SCHOOL COUNCIL

H. C. BYRD, LL.D., President of the University.

C. O. APPLEMAN, Ph.D., Dean of the Graduate School, Chairman.

HAROLD BENJAMIN, Ph.D., Professor of Education.

R. B. CORBETT, Ph.D., Director Experiment Station.

E. N. CORY, Ph.D., Professor of Entomology.

H. F. COTTERMAN, Ph.D., Professor of Agricultural Education.

N. L. DRAKE, Ph.D., Professor of Organic Chemistry.

C. B. HALE, Ph.D., Professor of English.

L. V. HOWARD, Ph.D., Professor of Political Science.

WILBERT J. HUFF, Ph.D., D.Sc., Professor of Chemical Engineering.

L. H. JAMES, Ph.D., Professor of Bacteriology.

JOHN G. JENKINS, Ph.D., Professor of Psychology.

DEVÖE MEADE, Ph.D., Professor of Animal Husbandry and Dairy Husbandry.

M. MARIE MOUNT, M.A., Professor of Home and Institution Management.

H. J. PATTERSON, D.Sc., Dean Emeritus of Agriculture.

W. MACKENZIE STEVENS, Ph.D., Professor of Economics and Business Administration.

A. E. ZUCKER, Ph.D., Professor of Modern Languages.

WALTER H. HARTUNG, Ph.D., Professor of Pharmaceutical Chemistry (Baltimore).

EDUARD UHLENHUTH, Ph.D., Professor of Gross Anatomy (Baltimore).

HISTORY AND ORGANIZATION

In the earlier years of the institution the Master's degree was frequently conferred, but the work of the graduate students was in charge of the departments concerned, under the supervision of the general faculty. The Graduate School of the University of Maryland was established in 1918, and organized graduate instruction leading to both the Master's and the Doctor's degree was undertaken. The faculty of the Graduate School includes all members of the various faculties who give instruction in approved graduate courses. The general administrative functions of the graduate faculty are delegated to a Graduate Council, of which the Dean of the Graduate School is chairman.

LIBRARIES

In addition to the resources of the University libraries the great libraries of the National Capital are easily available for reference work. Because of the proximity of these libraries to College Park they are a valuable asset to research and graduate work at the University of Maryland.

The library building at College Park contains a number of seminar rooms and other desirable facilities for graduate work.

ADMISSION

An applicant for admission to the Graduate School must hold a bachelor's or a master's degree from a college or university of recognized standing. The applicant shall furnish an official transcript of his collegiate record which for unconditional admission must show creditable completion of an adequate amount of undergraduate preparation for graduate work in his chosen field. Application for admission to the Graduate School should be made prior to dates of registration on blanks obtained from the office of the Dean.

After approval of the application a matriculation card, signed by the Dean, is issued to the student. This card permits one to register in the Graduate School. After payment of the fee, the matriculation card is stamped and returned to the student. It is his certificate of membership in the Graduate School and should be retained by the student to present at each succeeding registration.

Admission to the Graduate School does not necessarily imply admission to candidacy for an advanced degree.

REGISTRATION

All students who wish to graduate work in the University, even though they are not candidates for higher degrees, are required to register in the Graduate School at the beginning of each semester. *In no case will graduate credit be given unless the student matriculates and registers in the Graduate School.* The program of work for the semester or the summer session is arranged by the student with the major department and entered upon two course cards, which are signed first by the professor in charge of the student's major subject and then by the Dean of the Graduate School. One card is retained by the Dean. The student takes the other card, and in case of a new student, also the matriculation card, to the Registrar's office, where the registration is completed. Students will not be admitted to graduate courses until the Registrar has certified to the instructor that registration has been completed. Course cards may be obtained at the Registrar's office or at the Dean's office. The heads of departments usually keep a supply of these cards in their respective offices.

GRADUATE COURSES

Graduate students must elect for credit in partial fulfillment of the requirements for higher degrees only courses designated *For Graduates* or *For Graduates and Advanced Undergraduates*. Graduate students who are inadequately prepared for graduate work in their chosen fields or who lack prerequisites for minor courses may elect a limited number of courses numbered from 1 to 99 in the general catalogue, but graduate credit will not be allowed for these courses. Courses that are audited are registered for in the same way, and at the same fees, as other courses.

PROGRAM OF WORK

The professor who is selected to direct a student's thesis work is the student's adviser in the formulation of a graduate program, including suitable minor work, which is arranged in cooperation with the instructors. To encourage thoroughness in scholarship through intensive application, graduate students in the regular sessions are limited to a program of fifteen credit hours for the semester. If a student is preparing a thesis during the minimum residence for the master's degree, the registration in graduate courses should not exceed twelve hours for the semester.

SUMMER GRADUATE WORK

Graduate work is offered during the summer semester and also in the short 7½-weeks summer session.

The University publishes a special bulletin giving full information concerning the summer sessions and the graduate courses offered therein. The bulletin is available upon application to the Director of the Summer Session, University of Maryland, College Park, Md.

GRADUATE WORK IN PROFESSIONAL SCHOOLS AT BALTIMORE

Graduate courses and opportunities for research are offered in some of the professional schools at Baltimore. Students pursuing graduate work in the professional schools must register in the Graduate School, and meet the same requirements and proceed in the same way as do graduate students in other departments of the University.

GRADUATE WORK BY SENIORS IN THIS UNIVERSITY

A senior of this University who has nearly completed the requirements for the undergraduate degree may, during his last semester of residence, with the approval of his undergraduate dean and the Dean of the Graduate School, register in the undergraduate college for graduate courses, which may later be transferred for graduate credit toward an advanced degree at this University, but the total of undergraduate and graduate courses must not exceed fifteen credits for the semester. Excess credits in the senior year cannot later be transferred unless such prearrangement is made. Graduate credits earned during the senior year may not be used to shorten the residence period required for advanced degrees.

ADMISSION TO CANDIDACY FOR ADVANCED DEGREES

Application for admission to candidacy for the Master's and for the Doctor's degree is made on application blanks which are obtained at the office of the Dean of the Graduate School. These are filled out in duplicate by the student and submitted to his major department for further action and transmission to the Dean of the Graduate School. An official transcript of the candidate's undergraduate record and any graduate courses completed

at other institutions must be on file in the Dean's office before the application can be considered. All applications for admission to candidacy must be approved by the Graduate Council.

Admission to candidacy in no case assures the student of a degree, but merely signifies he has met all the formal requirements and is considered by his instructors sufficiently prepared and able to pursue such graduate study and research as are demanded by the requirements of the degree sought. The candidate must show superior scholarship in his graduate work already completed.

Application for admission to candidacy is made at the time stated in the sections dealing with the requirements for the degree sought.

REQUIREMENTS FOR THE DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE

Advancement to Candidacy. Each candidate for the Master's degree is required to make application for admission to candidacy not later than the date when instruction begins for the second semester of the academic year in which the degree is sought (or in case of a summer school student at the end of the third summer's residence), but not until at least twelve semester course hours of graduate work have been completed. An average grade of B in all major and minor subjects is required.

Minimum Residence. A residence of at least two full semesters, or equivalent, at this institution, is required.

Course Requirements. A minimum of twenty-four semester hours, exclusive of research, with an average B grade in courses approved for graduate credit, is required for the degrees of Master of Arts and Master of Science. If the student is inadequately prepared for the required graduate courses, either in the major or minor subjects, additional courses may be required to supplement the undergraduate work. Of the twenty-four hours required in graduate courses, not less than twelve semester hours and not more than sixteen semester hours must be earned in the major subject. The remaining credits must be outside the major subject and must comprise a group of coherent courses intended to supplement and support the major work. Not less than one-half of the total required course credits for the degree, or a minimum of twelve, must be selected from courses numbered 200 or above. No credit for the degree of Master of Arts or Master of Science may be obtained for correspondence or extension courses. The entire course of study must constitute a unified program approved by the student's major adviser and by the Dean of the Graduate School.

Transfer of Credit. Credit, not to exceed six hours, obtained at other recognized institutions may be transferred and applied to the course requirements of the Master's degree, provided that the work was of graduate character, and provided that it is approved for inclusion in the student's graduate program at the University of Maryland. This transfer of credit is

submitted to the Graduate Council for approval when the student applies for admission to candidacy for the degree. Acceptance of the transferred credit does not reduce the minimum residence requirement. The candidate is subject to final examination by this institution in all work offered for the degree.

Thesis. In addition to the twenty-four semester hours in graduate courses a satisfactory thesis is required of all candidates for the degrees of Master of Arts and Master of Science. It must demonstrate the student's ability to do independent work and it must be acceptable in literary style and composition. It is assumed that the time devoted to thesis work will be not less than the equivalent of six semester hours earned in graduate courses. With the approval of the student's major professor and the Dean of the Graduate School, the thesis in certain cases may be prepared *in absentia* under direction and supervision of a member of the faculty of this institution.

The original copy of the thesis must be deposited in the office of the Graduate School not later than two weeks before commencement. The thesis should not be bound by the student, as the university later binds all theses uniformly. An abstract of the contents of the thesis, 200 to 250 words in length, must accompany it. A manual giving full directions for the physical make-up of the thesis is in the hands of each professor who directs thesis work, and should be consulted by the student before the typing of the manuscript is begun. Individual copies of this manual may be obtained by the student at the Dean's office, at nominal cost.

Final examination. The final oral examination is conducted by a committee appointed by the Dean of the Graduate School. The student's adviser acts as the chairman of the committee. The other members of the committee are persons under whom the student has taken most of his major and minor courses. The chairman and the candidate are notified of the personnel of the examining committee at least one week prior to the period set for oral examinations. The chairman of the committee selects the exact time and place for the examination and notifies the other members of the committee and the candidate. The examination should be conducted within the dates specified at the end of the semester, but upon recommendation of the student's adviser, an examining committee may be appointed by the Dean at any time when all other requirements for the degree have been completed. A report of the committee is sent to the Dean as soon as possible after the examination. A special form for this purpose is supplied to the chairman of the committee. Such a report is the basis upon which recommendation is made to the faculty that the candidate be granted the degree sought. The period for the oral examination is usually about one hour, but the time should be long enough to insure an adequate examination.

The examining committee also approves the thesis, and it is the candidate's obligation to see that each member of the committee has ample opportunity to examine a copy of the thesis prior to the date of the examination.

A student will not be admitted to final examination until all other requirements for the degree have been met. In addition to the oral examination a comprehensive written examination may be required at the option of the major department.

REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION

Course Requirements. Thirty hours of course work are required, which may include courses in departments other than Education not to exceed one-half of the total thirty hours, such courses to be selected in conformity with the student's special needs as agreed upon by the student and his adviser. Of the thirty hours, not less than one-half must be on the 200 level.

At least four of the thirty hours must be seminar work, which shall include one or more seminar papers in the student's major field of concentration in the Department of Education.

Included in the program must be courses in educational statistics and in procedure of educational research.

The requirements in regard to advancement to candidacy, transfer of credits, and final oral examination are the same as for the degrees of Master of Arts and Master of Science.

REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

The work for this degree is planned on a basis of two years of full-time work, fifty-four hours of course work, and a satisfactory thesis. The requirement of fifty-four hours may be reduced if the entering student has already completed a substantial amount of satisfactory advanced work in economics and business administration. The student should consult the Dean of the College of Commerce for the evaluation of previous work. Not less than twelve of the minimum of twenty-four semester hours of graduate credit shall be from courses numbered 200 or above.

Since the purpose of the study recognized by this degree is to obtain a well-rounded rather than a highly specialized training in business administration, the student's complete program of study should provide for course work, research or study in each important field of business administration and economics.

The requirements in regard to advancement to candidacy and final oral examination are the same as for the degrees of Master of Arts and Master of Science.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Advancement to Candidacy. Candidates for the Doctor's degree must be admitted to candidacy not later than two semesters prior to the June Commencement at which the degree is sought. Applications for admission to candidacy for the Doctor's degree are filled out in duplicate by the student and submitted to his major department for further action and transmission to the Dean of the Graduate School, not later than the first Wednesday in October of the academic year in which the degree is sought.

The applicant must have obtained from the head of the Modern Language Department a statement that he possesses a reading knowledge of French and German. Preliminary examinations or such other substantial tests as the departments may elect are also required for admission to candidacy.

Residence. Three years of full-time resident graduate study are required. The first two of the three years may be spent in other institutions offering standard graduate work. On a part-time basis the time needed will be correspondingly increased. All work at other institutions offered in partial fulfillment of the requirements for the Ph.D. degree is submitted to the Graduate Council for approval, upon recommendation of the department concerned, when the student applies for admission to candidacy for the degree.

The Doctor's degree is not given merely as a certificate of residence and work, but is granted only upon sufficient evidence of high attainments in scholarship, and ability to carry on independent research in the special field in which the major work is done.

Major and Minor Subjects. The candidate must select a major and one or two closely related minor subjects. At least twenty-four hours, exclusive of research, are required in minor work. The remainder of the required residence is devoted to intensive study and research in the major field. The amount of required course work in the major subject will vary with the department and the individual candidate. The candidate must register for a minimum of twelve semester hours of research.

Thesis. The ability to do independent research must be shown by a dissertation on some topic connected with the major subject. An original type-written copy and two clear, plain carbon copies of the thesis, together with an abstract of the contents, 250 to 500 words in length, must be deposited in the office of the Dean at least three weeks before commencement. It is the responsibility of the student also to provide copies of the thesis for the use of the members of the examining committee prior to the date of the final examination.

The original copy should not be bound by the student, as the University later binds uniformly all theses for the general University library. The carbon copies are bound by the student in cardboard covers which may be

obtained at the students' supply store; one is later sent to the University library and one to the Library of Congress. The abstracts are published biennially by the university in a special bulletin.

A manual giving full directions for the physical make-up of the thesis is in the hands of each professor who directs thesis work, and should be consulted by the student before typing of the thesis is begun. Students may obtain copies of this manual at the Dean's office, at nominal cost.

Final Examination. The final oral examination is held before a committee appointed by the Dean. One member of this committee is a representative of the graduate faculty who is not directly concerned with the student's graduate work. One or more members of the committee may be persons from other institutions who are distinguished scholars in the student's major field.

The duration of the examination is approximately three hours, and covers the research work of the candidate as embodied in his thesis, and his attainments in the fields of his major and minor subjects. The other detailed procedures are the same as those stated for the Master's examination.

RULES GOVERNING LANGUAGE EXAMINATIONS FOR CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

1. A candidate for the Doctor's degree must show in a written examination that he possesses a reading knowledge of French and German. The passages to be translated will be taken from books and articles in his specialized field. Some 300 pages of text from which the applicant wishes to have his examination chosen should be submitted to the head of the Department of Modern Languages at least three days before the examination. The examination aims to test ability to use the foreign language for research purposes. It is presumed that the candidate will know sufficient grammar to distinguish inflectional forms and that he will be able to translate readily in two hours about 500 words of text, with the aid of a dictionary.

2. Application for admission to these tests must be filed in the office of the Department of Modern Languages at least three days in advance of the tests.

3. No penalty is attached to failure in the examination, and the unsuccessful candidate is free to try again at the next date set for these tests.

4. Examinations are held near the office of the Department of Modern Languages on the first Wednesday of each semester, at 2 P. M.

GRADUATE FEES

The fees paid by graduate students are as follows:

All Students:

A matriculation fee of \$10.00. This is paid once only, upon admission to the Graduate School.

A diploma fee (Master's degree), \$10.00.

A graduate fee, including hood (Doctor's degree), \$20.00.

College Park:

A fixed charge, each semester, of \$6.00 per semester credit hour for students carrying eight hours or less; for students carrying more than eight hours, \$50.00 for the semester.

Laboratory fees range from \$2.00 to \$8.00 per course per semester.

Baltimore:

School of Medicine: A fixed charge, each semester, of \$8.00 per semester credit hour. Laboratory fees range from \$10.00 to \$20.00 per course.

School of Pharmacy: A fixed charge, each semester, of \$6.00 per semester credit hour. This fee is required of all graduate students except assistants, who will pay only a laboratory fee of \$3.00 per semester credit hour.

Living Expenses:

Board and lodging are available in many private homes in College Park and vicinity. The cost of board and room ranges from about \$35.00 to \$45.00 a month, depending on the desires of the individual. A list of accommodations is maintained in the offices of the Dean of Women and of the Dean of Men.

FELLOWSHIPS AND ASSISTANTSHIPS

Fellowships. A number of fellowships have been established by the University. The stipend for the University fellows is \$400 to \$500 and the remission of all graduate fees except the diploma fee. Several industrial fellowships, with varying stipends, are also available in certain departments.

Fellows are required to render minor services prescribed by their major departments. The usual amount of service required does not exceed twelve clock hours per week. Fellows are permitted to carry a full graduate program, and they may satisfy the residence requirement for higher degrees in the normal time. In cooperation with the United States Bureau of Mines and the United States Fish and Wild Life Service, several fellowships are offered for research in fields of study relating to the work of these agencies.

Scholarships. A limited number of scholarships are available, carrying a stipend of from \$150 to \$200, without remission of fees. Scholarships are awarded on the basis of ability and of financial need. Scholars carry full time work and only minor services are required by the departments.

Applications for fellowships and scholarships are made on blanks which may be obtained from the office of the Graduate School. The application,

with the necessary credentials, is sent by the applicant directly to the Dean of the Graduate School. Applications which are approved by the Dean are forwarded to the departments, where final selection of the fellows and scholars is made. The awards of University fellowships and scholarships are on a competitive basis.

Graduate Assistantships. A number of teaching and research graduate assistantships are available in several departments. The compensation for these assistantships is \$600 to \$1000 a year and the remission of all graduate fees except the diploma fee. Graduate assistants are appointed for one year and are eligible to reappointment. The assistant in this class devotes one-half of his time to instruction or to research in connection with Experiment Station projects, and he is required to spend two years in residence for the Master's degree. If he continues in residence for the Doctor's degree, he is allowed two-thirds residence credit for each academic year at this University. The minimum residence requirement from the Bachelor's degree, therefore, may be satisfied in four academic years and one summer, or three academic years and three summer sessions of eleven or twelve weeks each.

Applications for graduate assistantships are made directly to the departments concerned, and appointments are made through the regular channels for staff appointments. Further information regarding these assistantships may be obtained from the department or college concerned.

COMMENCEMENT

Attendance is required at the commencement at which the degree is conferred, unless the candidate is excused by the Dean.

Application for diploma must be filed in the office of the Registrar before April 1 of the year in which the candidate expects to obtain a degree at the June commencement.

Academic costume is required of all candidates at commencement. Those who so desire may purchase or rent caps and gowns at the Students' Supply Store. Order must be filed before April 1, but may be cancelled later if the student finds himself unable to complete his work for the degree.

SUMMER SESSION

HAROLD BENJAMIN, *Director.*

The regular summer semester conducted on the College Park campus for the first time in the summer of 1942 is divided into two halves of approximately seven and one-half weeks each. The first half of the summer semester is designed particularly to serve the needs of teachers and other educational workers who wish to spend part of the summer in study but do not find it possible to attend the university for the entire summer semester.

Terms of Admission

The admission requirements for those who desire to become candidates for degrees are the same as for any other session of the University. Before registering, a candidate for a degree will be required to consult the Dean of the College or School in which he wishes to secure the degree. Teachers and special students not seeking a degree are admitted to the courses of the summer session for which they are qualified. All such selection of courses must be approved by the Director of the Summer Session.

Credits and Certificates

Students attending the summer session for the first half of the summer semester only will ordinarily register for eight semester hours of work, although in special cases a student with a good record may be permitted to register for a maximum of ten semester hours in the first half of the summer semester. Certain of the university courses which are given for the full semester in the fall and spring are given for half a semester only during the summer. Thus a two-semester hour course given for the first half of the summer only will meet four times a week; a three-semester hour course will meet six times a week. Certain other courses which are given for the entire summer semester may be entered by a summer session student for the first half of the semester with the purpose of completing the course in a later summer when the remainder of the course may be offered during the first half.

Courses satisfactorily completed will be credited by the State Department of Education towards satisfying certification requirements of all classes.

Summer Graduate Work

For persons wishing to do graduate work towards advanced degrees in the summer sessions, special arrangements are made supplementing the regular procedure. Teachers and other graduate students working for degrees on the summer plan must meet the same requirements as to admission, credits, scholarship, and examinations as do students enrolled in the regular sessions of the University.

All teachers or others planning to do work towards graduate degrees in Education must apply to the Dean of the Graduate School as early as possible for admission to candidacy in the Graduate School.

For detailed information in regard to the Summer Session, consult the special Summer Session announcement, issued annually in April. A copy of this announcement may be secured from the Director, Summer Session, University of Maryland, College Park, Md.

EVENING COURSES

HAROLD BENJAMIN, *Chairman,*
Division of Evening Extension Courses.

The University provides a limited program of evening instruction for undergraduates and graduates at College Park, and for undergraduates only in various other centers of the State. During the period 1940-1942, such courses were given at Cambridge, Denton, Frederick, Easton, Frostburg, Charlotte Hall, LaPlata, Cumberland, and Prince Frederick.

Courses in any university subject may be offered in the evening program when there is a sufficient student demand and instructors are available. During 1940-1942 evening courses were given at *College Park* in Education, English, History, Political Science, Psychology, Sociology, and Zoology. During the same period, courses in other centers included work in English, History, and Political Science.

The evening program is carried on primarily as a service to employed persons. Although the majority of those enrolled in evening classes are teachers in the schools of Maryland, or the District of Columbia, the University is glad to provide evening courses for other vocational groups to the extent of its facilities.

A separate announcement with regard to Evening Courses is issued early in the Fall. A copy of this announcement, or any further information desired may be secured by communicating with:

DR. HAROLD BENJAMIN, *Chairman,*
Division of Evening Extension Courses,
University of Maryland,
College Park, Maryland.

Note: For information as to Evening Courses offered in Baltimore see "College of Education, Baltimore Division," Section III.

DESCRIPTION OF COURSES

This section contains a list of all courses offered in the regular sessions of the University at College Park. Courses offered in the short Summer Session and in the Baltimore Schools of the University are described in the separate catalogs issued by the several schools.

Preceding the detailed statement of courses, is a brief index of courses for the convenience of students in making out their class schedules.

The University reserves the right to withdraw or discontinue any course for which an insufficient number of students have registered to warrant giving the course. In such an event, no fee will be charged for transfer to another course.

Courses are designated by numbers as follows:

Group I numbered 1 to 49—courses primarily for freshmen, and sophomores.

Group II numbered 50 to 99—courses for juniors and seniors.

Group III numbered 100 to 199—courses for advanced undergraduates (well-qualified juniors and seniors) and graduates.

Group IV numbered 200 to 299—courses for graduates only.

Courses designated by the letters "f" and "s" following the numbers, are unit courses, and both the "f" (first) and the "s" (second) parts must be completed before credit is allowed for the course.

Courses not otherwise designated are lecture courses.

The number of hours' credit is shown by the arabic numeral in parentheses after the title of the course.

A separate schedule of courses is issued each semester, giving the hours, places of meeting, and other information required by the student in making out his program. Students obtain these schedules when they register.

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AGRICULTURAL ECONOMICS AND FARM MANAGEMENT*

PROFESSOR DEVAULT; LECTURER BAKER; ASSOCIATE PROFESSORS WALKER, CODDINGTON, HAMILTON; ASSISTANT PROFESSOR POFFENBERGER.

A. E. 1. Agricultural Industry and Resources (3)—Two lectures; one laboratory.

A descriptive course dealing with agriculture as an industry and its relation to climate, physiography, soils, population centers and movements, commercial development, transportation, etc.; the existing agricultural resources of the world and their potentialities, commercial importance, and geographical distribution; the chief sources of consumption; the leading trade routes and markets for agricultural products. The history of American agriculture is briefly reviewed. Emphasis is upon the chief crop and livestock products of the United States. Summer, Spring.

A. E. 2. Farm Organization (3).

A study of farm organization consisting of an introduction to the complex problems of the agricultural industry as these problems affect the life and welfare of the individual farmer. More specifically, the course includes the choice of agriculture as a vocation; adaptation of farms to particular enterprises; types of farming and factors influencing the same; farm returns; the use of labor, machinery, and land in production; combination of crop and livestock enterprises as they affect the farmer's income; and a study of successful and unsuccessful Maryland farms. Fall.

For Advanced Undergraduates

A. E. 90 f s. Seminar (2).

Students will prepare and present reports on economic literature and current problems. Summer, Fall, Spring. (Hamilton.)

For Advanced Undergraduates and Graduates

A. E. 100. Farm Economics (3)—Prerequisite, Econ. 31, 32, or 37.

A general course in agricultural economics, with special reference to population trend, agricultural wealth, land tenure, farm labor, agricultural credit, the tariff, price movements, and marketing. Fall. (DeVault.)

A. E. 102. Marketing of Farm Products (3)—Prerequisite, Econ. 31, 32, or 37.

A complete analysis of the present system of transporting, storing, and distributing farm products, and a basis for intelligent direction of effort in increasing the efficiency of marketing methods. Spring. (DeVault.)

A. E. 103. Cooperation in Agriculture (3).

Historical and comparative development of farmers' cooperative organizations with some reference to farmer movements; reasons for failure and essentials to success; commodity developments; the Federal Farm Board; banks for cooperatives; present trends. Fall. (Poffenberger.)

*See also related courses in Economics and in Business Administration.

A. E. 104. Farm Finance (3).

Agricultural Credit requirements; development and volume of business of institutions financing agriculture; financing specific farm organizations and industries. *Farm insurance*—fire, crop, livestock, and life insurance, with special reference to mutual development—how provided, benefits, and needed extension. Spring. (Poffenberger.)

A. E. 105. Food Products Inspection (2)—One lecture; one laboratory.

This course, arranged by the Department of Agricultural Economics in cooperation with the State Department of Markets and the United States Department of Agriculture, is designed to give students primary instruction in the grading, standardizing, and inspection of fruits and vegetables, dairy products, poultry products, meats, and other food products. Theoretical instruction covering the fundamental principles will be given in the form of lectures, while the demonstrational and practical work will be conducted through laboratories and field trips to Washington, D. C., and Baltimore. Summer, Spring. (Staff.)

A. E. 106. Prices of Farm Products (3)—Two lectures; one laboratory.

A general course in prices, price relationships, and price analysis, with emphasis on prices of agricultural products. Spring. (Poffenberger.)

A. E. 107. Analysis of the Farm Business (3)—One lecture; two laboratories.

A concise practical course in the keeping, summarizing, and analyzing of farm accounts. Fall. (Hamilton.)

A. E. 108. Farm Management (3).

A study of the organization and operation of Maryland farms from the standpoint of efficiency and profits. Students will be expected to make an analysis of the actual farm business and practices of different types of farms located in various parts of the State, and to make specific recommendations as to how these farms may be organized and operated as successful businesses. Spring. (Hamilton.)

A. E. 109. Research Problems (1, 1).

With the permission of the instructor, students will work on any research problems in agricultural economics which they may choose, or a special list of subjects will be made up from which the students may select their research problems. There will be occasional class meetings for the purpose of making reports on progress of work, methods of approach, etc. Summer, Fall, Spring. (DeVault.)

A. E. 111. Land Economics (3).

Concepts of land economy are discussed, as well as conditions and tendencies influencing land requirements in relation to land resources. A study of major land problems and land policies including erosion and its control; farm tenancy; tax delinquency and tax reverted lands; land use planning and production control; public policies for facilitating land use adjustments; and directional measures for discouraging undesirable land uses. Fall. (Coddington.)

For Graduates**A. E. 200. Special Problems in Farm Economics (1).**

An advanced course dealing extensively with some of the economic problems affecting the farmer; such as land problems, agricultural finance, farm wealth, agricultural prices, transportation, and special problems in marketing and cooperation. Fall, Spring. (Staff.)

A. E. 202. Seminar (1).

This course will consist of special reports by students on current economic subjects, and a discussion and criticism of the same by the members of the class and the instructor. Fall, Spring. (DeVault.)

A. E. 203. Research—Credit determined by work accomplished.

Students will be assigned research in agricultural economics under the supervision of the instructor. The work will consist of original investigation in problems of agricultural economics. Summer, Fall, Spring. (DeVault.)

A. E. 210. Taxation in Relation to Agriculture (2).

Principles and practices of taxation in their relation to agriculture, with special reference to the trends of tax levies, taxation in relation to land utilization, taxation in relation to ability to pay and benefits received; a comparison of the following taxes as they affect agriculture: general property tax, income tax, sales tax, gasoline and motor vehicle license taxes, inheritance tax, and special commodity taxes; possibilities of farm tax reduction through greater efficiency and economies in local government. Spring. (Walker, DeVault.)

A. E. 211. Agricultural Taxation in Theory and Practice (3)—Two lectures; one laboratory.

Ideals in taxation; economic effects of taxation upon the welfare of society; theory of taxation: the general property tax, business and license taxes, the income tax, the sales tax, special commodity taxes, inheritance and estate taxes; recent shifts in taxing methods and recent tax reforms; conflicts and duplication in taxation among governmental units; practical and current problems in taxation. Fall. (Walker, DeVault.)

A. E. 212, 213. Land Utilization and Agricultural Production (3, 2).

A presentation, by regions, of the basic physical conditions of the economic and social forces that have influenced agricultural settlement, and of the resultant utilization of the land and production of farm products; followed by a consideration of regional trends and interregional shifts in land utilization and agricultural production, and the outlook for further changes in each region. Fall, Spring. (Baker.)

A. E. 214. Consumption of Farm Products and Standards of Living (3).

A presentation of the trends in population and migration for the nation and by states; of trends in exports of farm products and their regional sig-

nificance; of trends in diet and in per capita consumption of non-food products; followed by a consideration of the factors that appear likely to influence these trends in the future; and of the outlook for commercial as contrasted with a more self-sufficing agriculture. (Baker.)

A. E. 215. Advanced Agricultural Cooperation (2).

An appraisal of agricultural cooperation as a means of improving the financial status of farmers. More specifically, the course includes a critical analysis and appraisal of specific types and classes of cooperatives. (Poffenberger.)

AGRICULTURAL EDUCATION AND RURAL LIFE

PROFESSORS COTTERMAN, CARPENTER; ASSISTANT PROFESSOR AHALT.

For Advanced Undergraduates**R. Ed. 51, 52. Farm Practicums and Demonstrations (1, 1)—One laboratory.**

This course is designed to assist the student in relating the learning acquired in the several departments of the University with the problems of doing and demonstrating which he faces in the field and in the classroom as a teacher. It aims particularly to check his training in the essential practicums and demonstrations in vocational agriculture, and to introduce him to the conditions under which such activities must be carried on in the patronage areas and laboratories of vocational departments. Laboratory practice in deficiencies required. Summer, Fall; Fall, Spring. (Ahalt.)

R. Ed. 90 f s, 91. Practice Teaching (4, 1-4)—Prerequisite, R. Ed. 109.

Under the direction of a critic teacher the student in these courses is required to analyze and prepare special units of subject matter, plan lessons, and teach in cooperation with the critic teacher, exclusive of observation, not less than 100 clock hours of day class vocational agriculture and related subjects. (Cotterman.)

For Advanced Undergraduates and Graduates**R. Ed. 107. Observation and the Analysis of Teaching for Agricultural Students (3)—Two lectures; one laboratory. Required of juniors in Rural Life and Agricultural Education. Elective for others.**

This course deals with an analysis of pupil learning in class groups. Fall, Spring. (Cotterman, Ahalt.)

R. Ed. 109. Teaching Secondary Vocational Agriculture (3)—Prerequisite, R. Ed. 107.

A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particularly placement, supervised farming programs, the organization and administration of Future Farmer work, and objectives and methods in all-day continuation, and adult instruction. Fall. (Cotterman, Ahalt.)

R. Ed. 110. Rural Life and Education (3).

An intensive study of the educational agencies at work in rural communities, stressing an analysis of school patronage areas, the possibilities of normal life in rural areas, early beginnings in rural education, and the conditioning effects of economic differences. The course is designed especially for persons who expect to be called upon to assist in shaping educational and other community programs for rural people. Summer, Spring.

(Cotterman.)

R. Ed. 112. Departmental Organization and Administration (1)—Prerequisites, R. Ed. 107, 109.

The work of this course is based upon the construction and analysis of administrative programs for high school departments of vocational agriculture. As a project, each student prepares and analyzes in detail an administrative program for a specific school. Investigations and reports. Fall, Spring.

(Ahalt.)

R. Ed. 114. Teaching Farm Mechanics in Secondary Schools (1)—Prerequisites, R. Ed. 107, Agr. Engr. 54.

Objectives in the teaching of farm shop and farm mechanics; contemporary developments; determination of projects; shop management; shop programs; methods of teaching; equipment; materials of construction; special projects. Fall, Spring.

(Carpenter.)

For Graduates**R. Ed. 201, 202. Rural Life and Education (3, 3)—Prerequisite, R. Ed. 110 or equivalent.**

A sociological approach to rural education as a movement for a good life in rural communities. It embraces a study of the organization, administration, and supervision of the several agencies of public education as component parts of this movement and as forms of social economy and human development. Discussions, assigned readings, and major term papers in the field of the student's special interest.

(Cotterman.)

R. Ed. 207, 208. Problems in Vocational Agriculture, Related Science, and Shop (2, 2).

In this course special emphasis is placed upon the current problems facing teachers of vocational agriculture. It is designed especially for persons who have had several years of teaching experience in this field. The three phases of the vocational teacher's program—all day, part-time, and adult work—receive attention. Discussions, surveys, investigations, and reports.

(Cotterman.)

R. Ed. 250. Seminar in Rural Education (1-2).

Problems in the organization, administration, and supervision of the several agencies of rural education. Investigations, papers, and reports.

(Cotterman.)

R. Ed. 251. Research—Credit hours according to work done. Students must be especially qualified by previous work to pursue with profit the research to be undertaken.

(Cotterman.)

AGRICULTURAL ENGINEERING

PROFESSOR CARPENTER; ASSOCIATE PROFESSORS KREWATCH, BURKHARDT.

For Advanced Undergraduates**Agr. Engr. 54. Farm Mechanics (1)—One laboratory.**

This course consists of laboratory exercises in practical farm shop and farm equipment repair and construction projects. It is offered primarily for prospective teachers of vocational agriculture. Fall. (Carpenter.)

For Advanced Undergraduates and Graduates**Agr. Engr. 101. Farm Machinery (3)—Two lectures; one laboratory.**

A study of the economics, design and adjustments of modern horse- and tractor-drawn machinery, including applications of electricity to farm operations. Laboratory work consists of detailed study of actual machines, their calibration, adjustment, and repair. Fall. (Carpenter.)

Agr. Engr. 102. Gas Engines, Tractors and Automobiles (3)—Two lectures; one laboratory.

A study of the design, operation, and repair of the internal combustion engines, trucks, tractors and automobiles used in farm practice. Spring. (Carpenter.)

Agr. Engr. 105. Farm Buildings (2).

A study of all types of farm structures; also of farm heating, lighting, water supply, and sanitation systems. Fall. (Carpenter.)

Agr. Engr. 107. Farm Drainage (2)—One lecture; one laboratory.

A study of farm drainage systems, including theory of tile under-drainage, the depth and spacing of laterals, calculation of grades, methods of construction, and the use of engineering instruments. A smaller amount of time will be spent upon drainage by open ditches, and the laws relating thereto. Spring. (Carpenter.)

AGRONOMY**Division of Crops**

PROFESSOR KEMP; MR. A. W. WOODS.

Agron. 1. Cereal Crop Production (3)—Two lectures; one laboratory.

History, distribution, adaptation, culture, improvement, and uses of cereal, forage, pasture, cover, and green manure crops. Fall.

Agron. 2. Forage Crop Production (3)—Two lectures; one laboratory. Continuation of Agron. 1. Summer, Spring.**For Advanced Undergraduates**

Agron. 51. Technology of Crop Quality (1-3)—Students, other than those specializing in agronomy, may register for either portion of the course. Part one (Grading Farm Crops)—one lecture; one laboratory. The market classifications and grades as recommended by the United States Bureau of Markets, and practice in determining grades. Part two (Grain, Hay, and Seed Judging and Identification)—one laboratory. Fall.

Agron. 54. Selected Crop Studies (1-4)—Credit according to work done.

This course is intended primarily to give an opportunity for advanced study of crop problems or crops of special interest to students. Summer, Fall, Spring.

For Advanced Undergraduates and Graduates

Agron. 103. Crop Breeding (2)—Prerequisite, Zool. 104.

The principles of breeding as applied to field crops, and methods used in crop improvement. Fall. (Kemp.)

Agron. 121. Methods of Crop and Soil Investigations (2).

A consideration of agricultural investigation methods at the various experiment stations, and the standardization of such methods. Fall. (Staff.)

For Graduates

Agron. 201. Crop Breeding (2-8)—Credits determined by work accomplished.

The content of this course is similar to that of Agron. 103, but will be adapted more to graduate students, and more of a range will be allowed in choice of material to suit special cases. Fall. (Kemp.)

Agron. 203. Seminar (1)—One report period each week.

The seminar is devoted largely to reports by students on current scientific publications dealing with problems in crops and soils. Fall, Spring. (Staff.)

Agron. 209. Research (6-8)—Credit determined by work accomplished.

With the approval of the head of the department, the student will be allowed to work on any problem in agronomy, or he will be given a list of suggested problems from which he may make a selection. Summer, Fall, Spring. (Staff.)

Division of Soils

PROFESSOR THOMAS; DR. MADIGAN, MR. SPECHT.

Soils 1. Soils and Fertilizers (3-5)—Three lectures; two laboratories. Prerequisites, Geol. 1, Chem. 1 f s, 12A. Lectures may be taken without the laboratory.

A study of the principles involved in soil formation and classification. The influence of physical, chemical, and biological activities on plant growth, together with the use of fertilizers in the maintenance of soil fertility. Fall, Spring.

For Advanced Undergraduates

Soils 53. Soil Geography (3)—Two lectures; one discussion period.

A study of the genealogy of soils, the principal soil regions of North America, and the classification of soils. Field trips will be made to emphasize certain important phases of the subject. Fall.

For Advanced Undergraduates and Graduates

Soils 102. Soil Management (3)—Two lectures; one laboratory. Prerequisite, Soils 1.

A study of the soil fertility systems of the United States, with special emphasis on the interrelation of total to available plant food, the balance of nutrients in the soil with reference to various cropping systems, and the economic and national aspect of permanent soil improvement. Fall. (Thomas.)

Soils 112. Soil Conservation (3).

A study of the factors relating to soil preservation, including the influence of cropping and soil management practices, fertilizer treatments, constructive agencies of man and nature on conservation, history of research in soil erosion, and field trips to soil demonstration areas. (Not offered 1942-43.) (Thomas.)

For Graduates

Soils 201. Special Problems and Research (10-12).

Original investigation of problems in soils and fertilizers. Summer, Fall, Spring. (Staff.)

Soils 202 f s. Soil Science (3-5 f, 2 s)—Three lectures, two laboratories first semester; two lectures, second semester. Prerequisites, geology, soils, and organic and quantitative chemistry. The lectures and laboratory may be taken separately.

A discussion of the physical, chemical, and biological processes involved in the development of soils with special emphasis on soil water, organic matter, structure colloids, base exchange, and plant food deficiencies in their relation to soil fertility. The laboratory involves a study of the methods used in soil investigation. Fall, Spring. (Thomas.)

Soils 204. Soil Micro-Biology (3)—Two lectures; one laboratory. Prerequisite, Bact. 1.

A study of the micro-organisms of the soil in relation to fertility. It includes the study of the bacteria of the soil concerned in the decomposition of organic matter, nitrogen fixation, nitrification, and sulphur oxidation and reduction, and deals also with such organisms as fungi, algae, and protozoa.

The course includes a critical study of the methods used by experiment stations in soil investigational work. (Not offered 1942-43.)

ANIMAL HUSBANDRY

PROFESSORS LEINBACH, MEADE; LECTURERS FINNEY, BRUECKNER;
ASSISTANT PROFESSOR OUTHUSE; MR. HENSEL.

A. H. 2. Fundamentals of Animal Husbandry (3)—Three laboratories.

The relation of livestock to agriculture and the nation's welfare. A study of the types, breeds and market classes of beef cattle, sheep, hogs and horses; systems of livestock farming; functions of shows, sales, breed and

livestock associations; general problems in breeding, feeding, and management. Practice will be given in the selection, fitting, showing of livestock; and livestock farm analysis. Fall, Spring.

A. H. 31. Livestock Judging (2)—Two laboratories. Prerequisite, A. H. 2. Training in the judging of beef cattle, sheep, hogs and draft horses. Occasional judging trips are made to farms where outstanding herds and flocks are maintained. Spring.

For Advanced Undergraduates

A. H. 52. Feeds and Feeding (3)—Two lectures; one laboratory. Prerequisites, Chem. 1 f s and Chem. 12 f s.

Elements of nutrition, source, characteristics, and adaptability of the various feeds to the several classes of livestock; feeding standards; the calculation and compounding of rations. Fall.

A. H. 53. Principles of Breeding (3)—Two lectures; one laboratory. Prerequisite, Zool. 104.

The practical aspects of animal breeding, heredity, variation, selection, development, systems of breeding, and pedigree work are considered. Spring.

A. H. 55. Livestock Management (2)—Two laboratories. Prerequisite, A. H. 2.

A thorough livestock management course designed to familiarize students with the practical handling and management of livestock. Students are given actual practice and training in the maintaining, feeding, fitting, and preparation of animals for show and work purposes. Spring.

A. H. 56. Meat and Meat Products (1)—One laboratory. Prerequisite, A. H. 2.

A course designed to give the student information on the processing and handling of the nation's meat supply. Included is a study of the physical and structural differences which affect the value of meat and meat products. Some trips are made to packing houses and meat distributing centers. Fall.

A. H. 58. Advanced Livestock Judging (2)—Two laboratories. Prerequisite, A. H. 31.

An advanced course in the selection and judging of purebred and commercial meat and work animals. Numerous judging trips are made to afford a wider variety of class material. The most adept students enrolled in this course are chosen to represent the University of Maryland in intercollegiate livestock judging contests. Fall.

A. H. 60. Beef Cattle Production (2)—Prerequisite, A. H. 2.

Principles underlying the practical and economical production of beef cattle, including a study of the breeds and their adaptability; breeding, feeding, and management of purebred and commercial herds; the feeding of market cattle. Fall.

A. H. 64. Sheep Production (2)—Prerequisite, A. H. 2.

Principles underlying the practical and economical production of sheep, including a study of the breeds and their adaptability. Breeding, feeding and management of purebred and commercial flocks; the feeding of market lambs. Fall.

A. H. 67. Pork Production (2)—Prerequisite, A. H. 2.

Principles underlying the practical and economical production of hogs; breeding, feeding, and management of purebred and commercial herds; breeds of swine and their adaptability. Spring.

A. H. 69. Draft Horse Production (2)—Prerequisite, A. H. 2.

Principles underlying the practical and economical production and use of draft horses, including a study of the breeds and their adaptability. Spring.

For Advanced Undergraduates and Graduates

A. H. 112. Livestock Markets and Marketing (2)—Prerequisite, A. H. 2.

History and development of livestock markets and systems of marketing; trends of livestock marketing; effect of changes in transportation and refrigeration facilities; the merchandising of meat products. Fall.

(Leinbach.)

A. H. 114. Animal Nutrition (3)—Prerequisites, Chem. 12 f s A. H. 52.

Processes of digestion, absorption, and metabolism of nutrients; nutritional balances; nature of nutritional requirements for growth, production, and reproduction. Fall.

(Meade.)

A. H. 116. Light Horse Production (1).

A study of the light horse breeds with emphasis on the types and usefulness of each. A full discussion of principles of selection and breeding of light horses is included in this course. Fall. (Finney, Brueckner, Outhouse.)

A. H. 117. Advanced Light Horse Production (1)—Prerequisite, A. H. 116.

This course is a continuation of A. H. 116. Included is a study of the organization of the light horse farm, proper methods of feeding and training, control of disease, treatment and care of injuries, sale of surplus stock. Spring.

(Brueckner, Finney, Outhouse.)

For Graduates

A. H. 201. Special Problems in Animal Husbandry (2-3)—Credit given in proportion to amount of work completed.

Problems which relate specifically to the character of work the student is pursuing will be assigned. Fall, Spring, Summer.

(Staff.)

A. H. 202. Seminar (1).

Students are required to prepare papers based upon current scientific publications relating to animal husbandry or upon their research work for presentation before and discussion by the class. Fall, Spring. (Staff.)

A. H. 203. Research—Credit to be determined by the amount and character of work done.

With the approval of the head of the department, students will be required to pursue original research in some phase of animal husbandry, carry the same to completion, and report the results in the form of a thesis. Summer, Fall; Fall, Spring. (Staff.)

A. H. 204. Advanced Breeding (2)—Prerequisites, Zool. 104, A. H. 53.

This course deals with the more technical phases of heredity, variation recombination, and mutation; selection and selection indices; breeding systems; specific inheritance in farm animals; biometry as applied to animal breeding. Spring. (Meade.)

A. H. 206, 207. Advanced Livestock Management (3, 3)—Two lectures; one laboratory.

An intensive study of the newer developments in animal breeding, animal physiology, animal nutrition, endocrinology and other closely allied fields as they apply to the management and commercial production of livestock. Fall, Spring. (Leinbach.)

***ART**

PROFESSOR MARTI; ASSISTANT PROFESSOR HIGHBY.

Art 1. Art in Ancient Civilization (2).

Prehistoric period and Egypt to 1000 B. C. Survey of architectural remains, sculpture, painting. Attention is given to stages of culture as reflected in the archaeological and artistic remains. Lectures fully illustrated by slides. Spring.

Art 2. Art in Ancient Civilization (2).

Near East and Pre-Greek civilization of the eastern Mediterranean. Sumerian, Babylonian, Assyrian, Persian. The important archaeological discoveries of Schliemann and Evans at Troy, the Greek mainland and in Crete are treated in detail. Conducted with the use of slides. (Not offered 1942-43.)

Art 3. Art in Classical Civilization (2).

Monuments of Ancient Rome. A survey of the architectural remains and the decorative art of the Romans. The related Etruscan art development will also be treated, as well as the remains of Pompeii and important outlying sites of the Roman world. Illustrated with slides. Summer.

*For other courses in Art, see Home Economics.

Art 4. Art in Classical Civilization (2).

Greek Art: Architecture, sculpture, and vase-painting. The course covers the archaic period, treats in detail the highly developed forms of the Golden Age, and shows the main trends in the late Greek or Hellenistic era. Illustrated by slides. (Not offered 1942-43.)

Art 11. Medieval Art (3)—Three lectures. Occasional field trips.

An introduction to the figurative arts, and to the development of style. European architecture, sculpture, and painting, from the third century A. D. to the Renaissance, studied by means of slides. Summer. (Marti.)

Art 13. Modern Art (3)—Three lectures. Occasional gallery visits.

European art from the Renaissance to the present. Illustrated lectures. Visits to the museums in Washington. (Not offered 1942-43.) (Marti.)

Art 23. Italian Painting (3)—One lecture; two consecutive hours of museum study in the National Gallery of Art in Washington.

A study of the development of Italian art since the middle ages, with special emphasis on the painting of the Renaissance and the Baroque. Occasional comparison of painting with sculpture, and architecture. Lectures illustrated with slides. (Not offered 1942-43.) (Marti.)

For Advanced Undergraduates**Art 51. Principles of Art Appreciation (3)—Three lectures. Occasional gallery visits.**

A course designed to help those who seek the proper approach to figurative art, and the best enjoyment of it. Lectures illustrated with slides showing sample works from the fields of architecture, sculpture, painting and graphic art. Class discussion of principles. Exercises in criticism. Occasional visits to the museums in Washington.

The increased art activities in our schools confront teachers with the task of guiding their pupils to an intelligent appreciation of contemporary creations as well as of older works of art. A reasonable amount of time will be given to the pedagogical application of the principles studied in this course. Spring. (Marti.)

ASTRONOMY

DR. H. E. NEWELL

For Advanced Undergraduates**Astr. 51 f s. Astronomy (4).**

An elementary course in descriptive astronomy. Summer, Fall. (Newell.)

BACTERIOLOGY

PROFESSOR JAMES; ASSOCIATE PROFESSOR HANSEN; ASSISTANT PROFESSOR FABER; DR. PELCZAR, MR. NOLTE, MR. SNYDER, MRS. GOLDSMITH, MR. REED, MISS CRAGIN, MR. LEISE.

Bact. 1. General Bacteriology (3)—One lecture; two lecture-laboratories.

A brief history of bacteriology; microscopy; and cell morphology. Application to water, milk, foods, and soils; bacteria causing disease and methods of control. Preparation of culture media; sterilization and disinfection; microscopic and macroscopic examination of bacteria; isolation, cultivation and identification of bacteria. Laboratory fee, \$5.00. Summer, Fall, Spring. (Pelczar.)

Bact. 2. Pathogenic Bacteriology (4)—Two lectures; two laboratories. Sophomore standing. Prerequisites, Bact. 1 and 5.

Principles of infection and immunity; characteristics of pathogenic microorganisms. Isolation and identification of bacteria from pathological material; effects of pathogens and their products. Laboratory fee, \$8.00. Fall, Spring. (Faber.)

Bact. 2 A. Pathogenic Bacteriology (2)—Prerequisite, Bact. 1 and sophomore standing.

This course consists of the lectures only of Bact. 2. Fall, Spring. (Faber.)

Bact. 5. Bacteriological Technique (2)—Two laboratories. Prerequisite, Bact. 1 or 3.

Isolation of bacteria in pure cultures and their identification. The preparation of special bacteriological media and reagents. Advanced staining techniques and the measurement of bacteria. Anaerobic cultivation of bacteria and the use of specialized bacteriological apparatus. Required of all students majoring in Bacteriology. Laboratory fee, \$7.00. Summer, Fall, Spring. (Pelczar.)

For Advanced Undergraduates

Bact. 50. Household Bacteriology (3)—One lecture; two laboratories. Junior Year. For Home Economics students only.

A brief history of bacteriology; bacterial morphology, classification, and metabolism; relation to water, milk, dairy products, and other foods; infection and immunity; personal, home, and community hygiene. Laboratory fee, \$5.00. Fall, Spring. (Pelczar.)

Bact. 60. Public Health (1)—Prerequisite, Bact. 1.

A series of weekly lectures on public health and its administration, by the staff members of the Maryland State Department of Health, representing each of the bureaus and divisions. Offered in alternate years, alternating with Bact. 116. Fall, Spring. (James.)

Bact. 70. Elements of Sanitary Bacteriology (1)—Senior year. For Engineering students only.

Bacteria and their application to water purification and sewage disposal. Fall, Spring.

Bact. 80-81. Bacteriological Problems (2, 2)—Two laboratories. Prerequisites, Bact. 1, 2 and 5 and any other courses needed for the projects. Registration limited.

This course is arranged to provide qualified students an opportunity to continue specific bacteriological problems. Subject matter suitable to the needs of the particular student or problem will be arranged. The problems are to be selected, outlined, and investigated in consultation with, and under the supervision of, a member of the department. Results are to be presented in the form of a thesis. No graduate credit will be given for students majoring in Bacteriology. Laboratory fee, \$7.00. Summer, Fall, Spring. (Staff.)

Bact. 90, 91. Journal Club (1, 1)—Prerequisites, Bact. 1, 2 and 5.

Students will submit reports on current scientific literature or on individual problems in bacteriology, which will be discussed and criticized by members of the class and staff. No graduate credit will be given for students majoring in Bacteriology. Summer, Fall, Spring. (Staff.)

For Advanced Undergraduates and Graduates

Bact. 101. Milk Bacteriology (4)—Two lectures; two laboratories. Prerequisites, Bact. 1 and 5.

The sources and development of bacteria in milk; milk fermentation; sanitary production; care and sterilization of equipment; care and preservation of milk and cream; pasteurization; public health requirements. Standard methods of milk analysis; the bacteriological control of milk supplies and plant sanitation; occasional inspection trips. Laboratory fee, \$7.00. Summer, Fall, Spring. (Hansen.)

Bact. 102. Dairy Products Bacteriology (3)—One lecture; two laboratories. Prerequisites, Bact. 1 and 5, Bact. 101 f desirable.

Relation of bacteria, yeasts, and molds to cream, concentrated milks, fermented milks, starters, butter, ice cream, cheese, and other dairy products; sources of contamination. Microbiological analysis and control; occasional inspection trips. Laboratory fee, \$7.00. Summer, Spring. (Hansen.)

Bact. 111. Food Bacteriology (3)—One lecture; two laboratories. Prerequisites, Bact. 1 and 5.

Bacteria, yeasts and molds associated with fruits and vegetables, meats, seafoods, and poultry products. Methods of examination, and standards of quality. Microorganisms causing food spoilage and methods for their control. Laboratory fee, \$7.00. Fall, Spring. (James.)

Bact. 112. Sanitary Bacteriology (3)—One lecture; two laboratories. Prerequisites, Bact. 1 and 5.

Bacteriological and public health aspects of water supplies and water purification; swimming pool sanitation; sewage disposal; disposal of garbage and refuse; municipal sanitation. Standard methods for examination of water and sewage and for other sanitary analyses; differentiation and significance of the coli-aerogenes group. Laboratory fee, \$7.00. Fall, Spring. (Hansen.)

Bact. 115. Serology (4)—Two lectures; two laboratories. Prerequisite, Bact. 2.

Infection and resistance; agglutination, precipitation, complement fixation reactions; principles of immunity and hypersensitiveness. Preparation of necessary reagents; general immunological techniques; factors affecting reactions; applications in the identifications of bacteria and diagnosis of disease. Laboratory fee, \$8.00. Summer, Spring. (Faber.)

Bact. 116. Epidemiology (2)—Prerequisites, Bact. 1 and credit or registration in Bact. 2 or 2 A.

Epidemiology of important infectious diseases, including history, characteristic features, methods of transmission, immunization and control; periodicity; principles of investigation; public health applications. Offered alternate years. (Not offered 1942-43.) (Faber.)

Bact. 118. Systematic Bacteriology (2)—Prerequisite; 10 hours of Bacteriology.

History of bacterial classification; genetic relationships; international codes of nomenclature; bacterial variation as it affects classification. (Not offered 1942-43.) (James.)

Bact. 125. Clinical Methods (2)—Two laboratories. Prerequisites, Bact. 2 or 5 and consent of instructor.

Methods for microscopic examination of blood; bacteriological examination of sputum, feces and spinal fluids; microscopic and routine chemical methods for examination of urine. Laboratory fee, \$5.00. Summer, Fall, Spring. (Faber.)

For Graduates

Bact. 205. Research Methods (1)—Prerequisite, Bacteriology, 6 hours.

Methods of research; library practice; current literature; preparation of papers; research institutions, laboratory design, equipment and supplies; academic practices; professional aids. (Not offered 1942-43.)

Bact. 211. Bacterial Metabolism (2)—Prerequisites, Bact. 1, Chem. 12 f s or equivalent.

Growth, nutrition, physiological inter-relationships; bacterial enzymes; respiration; fermentations; chemical activities of microorganisms; industrial fermentations. (Not offered 1942-43.)

Bact. 212. Advanced Food Bacteriology (3)—One lecture, two laboratories. Prerequisite, Bact. 111, or equivalent.

Microorganisms used in food manufacture; bacterial, yeast and mold fermentations. Food infections and food poisonings; the role of flies, rodents, human carriers, etc., in the contamination of food products. Laboratory fee, \$7.00. Summer, Spring. (James.)

Bact. 216. Advanced Serology (2)—Prerequisite Bact. 115 or equivalent.

Immunology of individual infectious diseases, including virus and rickettsial diseases. Discussion of recent literature on serological problems. Offered for graduate students interested in doing research in immunology. Summer. (Faber.)

Bact. 221. Research (1-6)—Credit will be determined by the amount and character of the work accomplished. Prerequisites, Bact. 1, 2, 5, and any other courses needed for the particular project.

Properly qualified students will be admitted upon approval of the department head and, with his approval, the student may select the subject for research. The investigation is outlined in consultation with and pursued under the supervision of a faculty member of the department. Laboratory fee, \$3.00 per credit hour. Summer, Fall, Spring. (Staff.)

Bact. 231. Seminar (2)—Prerequisite, Bacteriology 10 hours.

Discussions and reports prepared by the students on current research, selected subjects, and recent advances in bacteriology. Summer, Fall, Spring. (James.)

Food Technology*

F. Tech. 1. Introduction to Food Technology (1)—Discussions of the general phases of study comprising food technology. (Not offered 1942-43.) For Advanced Undergraduates and Graduates

F. Tech. 100. Food Microscopy (2)—Two laboratories.

Microscopical analysis of foods following the methods used in the Federal Government and other agencies. Studies of the structural composition of agricultural and manufactured foods. Use of microscopic tests in factory control and analyses. Laboratory fee, \$7.00. (Not offered 1942-43.) (James.)

F. Tech. 108. Preservation of Poultry Products (2)—Two laboratories. Prerequisite, Bact. 1.

Studies of the microbiology of poultry, alive and during storage; microbiology of shell eggs, fresh and during storage; microbiology of frozen and dried eggs. This is taught in cooperation with the Department of Poultry Husbandry. Laboratory fee, \$7.00. (Not offered 1942-43.) (James, Gwin.)

*One or more of the scheduled courses for advanced undergraduates and graduates may be given during the evening, if a sufficient number of students register. Further information with reference to such evening courses may be obtained from the Department of Bacteriology. A special fee is charged.

F. Tech. 110. Regulatory Control (1)—One lecture and demonstration.

Methods followed in the control of foods in interstate and intrastate commerce. Consideration of laboratory basis of standards of control. Fall. (James.)

F. Tech. 120. Food Sanitation (2)—Lecture, laboratory, and field work. Prerequisites, Bact. 1, 111 or equivalent. Enrollment limited, with preference given to students majoring in this field.

Principles of sanitation in food manufacture and distribution; methods of control of sanitation in commercial canning, pickling, bottling, preserving, refrigeration, dehydration, etc. Laboratory fee, \$7.00. Spring. (James.)

F. Tech. 130 f s. Technology Conference (2)—One lecture.

Reports and discussions of current developments in the field of food technology. Fall, Spring. (James.)

BOTANY

PROFESSORS APPLEMAN, NORTON, JEHL, BAMFORD; ASSISTANT PROFESSORS BROWN, WOODS, SHIRK; DR. JEFFERS, MR. COX, MR. JONES, MR. HANEY, MR. PIERCE, MR. STEWART, MISS CHRISTENSEN.

Bot. 1. General Botany (4)—Two lectures; two laboratories.

General introduction to botany, touching briefly on all phases of the subject. The chief aim in this course is to present fundamental biological principles rather than to lay the foundation for professional botany. The student is also acquainted with the true nature and aim of botanical science, its methods, and the value of its results. Laboratory fee, \$5.00. Fall, Summer.

Bot. 2. General Botany (4)—Two lectures; two laboratories. Prerequisite, Bot. 1.

A continuation of Bot. 1. A brief study of algae, fungi, liverworts, mosses, ferns and their relatives, and the seed plants. The evolutionary relationships of these groups is emphasized. The identification of local plants by use of manuals and keys is introduced. Several field trips will be arranged. Laboratory fee, \$3.00. Spring.

Bot. 20. Diseases of Plants (3-4)—Two lectures; one or two laboratories. Prerequisite, Bot. 1, or equivalent.

An introductory study in the field, in the laboratory, and in the literature, of symptoms, causal agents, and control measures of plants. The work is so arranged that a student may devote part of his time to the important diseases of the plants in which he is particularly interested. Laboratory fee, \$3.00. Fall.

For Advanced Undergraduates

Bot. 50. Plant Taxonomy (3)—One lecture; two laboratories. Prerequisite, Bot. 2.

Classification of the vegetable kingdom, and the principles on which classification is based; methods of taxonomic research in field, garden, herbarium, and library. The identification of plants is continued. Each student works on a special problem during some of the laboratory time. Spring, Summer. (Brown.)

Bot. 51. Plant Microtechnique (2)—Two laboratories. Prerequisite, Bot. 1.

Principles and methods involved in the preparation of permanent microscope slides of plant materials. Practice with the most generally used techniques on a variety of tissues. An opportunity for the student to make a private collection of several hundred slides. Laboratory fee, \$3.00. Fall. (Brown.)

Bot. 52. Seminar (1).

Discussion of current literature, problems, and progress in botany, plant physiology and plant pathology. For undergraduate majors and minors. Fall, Spring. (Brown.)

Bot. 70. Research Method in Plant Pathology (1-2)—One conference; laboratory according to credit desired. Prerequisite, Bot. 20, or equivalent.

Students who are interested in obtaining advanced training in basic technics such as preparation of phytopathological culture media, cultural methods, isolation of pathogens, and other essential procedures, should register for two credits in 104. Laboratory fee, \$3.00 per semester. Fall, Spring. (Staff.)

A. General Botany and Morphology

For Advanced Undergraduates and Graduates

Bot. 101. Plant Anatomy (3)—One lecture; two laboratories. Prerequisite, Bot. 51.

The origin and development of the organs and tissue systems in the vascular plants, with special emphasis on the structures of roots, stems, and leaves. Laboratory fee, \$3.00. Fall. (Bamford.)

Bot. 104. Advanced Plant Taxonomy (3)—One lecture; two laboratories. Prerequisite, Bot. 50.

Principles and criteria of plant taxonomy. Reviews and criticisms of current taxonomic literature. Emphasis on the identification and recognition of the Compositae and other species blooming in the fall. Each student works on a special problem during the laboratory time. Fall. (Not offered 1942-43.) (Norton.)

Bot. 105. Structure of Economic Plants (2)—Two laboratories. Prerequisite, Bot. 101.

A detailed microscopic study of the chief fruit and vegetable crops. Spring. (Not offered 1942-43.) (Bamford.)

Bot. 106. History and Philosophy of Botany (1).

Discussion of the development of ideas and knowledge about plants, also a survey of contemporary work in botanical science. Fall. (Not offered 1942-43.) (Norton.)

For Graduates

Bot. 201. Cytology (4)—Two lectures; two laboratories. Prerequisites, Bot. 51, Zool. 104, or equivalent.

A detailed study of the cell during its metabolic and reproductive stages. The major portion is devoted to chromosomes in mitosis and meiosis, and the relation of these stages to current theories of heredity and evolution. The laboratory involves the preparation, examination, and illustration of cytological material by current methods. Laboratory fee, \$3.00. Spring. (Bamford.)

Bot. 202. Plant Morphology (2)—Two lectures and demonstrations. Prerequisites, Bot. 50, 101, or equivalent.

A comparative study of the morphology of the flowering plants, with special reference to their phylogeny and development. Laboratory fee, \$3.00. Spring. (Bamford.)

Bot. 203. Seminar (1)—Prerequisite. Permission of instructor.

The study of special topics in plant morphology, anatomy, and cytology. Fall, Spring. (Bamford.)

Bot. 204. Research—Credit according to work done. Summer, Fall, Spring. (Bamford.)

B. Plant Pathology

For Advanced Undergraduates and Graduates

Plt. Path. 101. Diseases of Special Crops (3)—Prerequisite, Bot. 20 or equivalent.

Intended for students of plant pathology, horticulture, agronomy, entomology, who wish to obtain more detailed information on diseases of special crops than is available in Bot. 20. Lectures are given by different members of the staff who are specialists in the fields covered. Fall. (Woods, Jehle, Cox, Jeffers.)

Plt. Path. 108. Mycology (4)—Two lectures; two laboratories. Prerequisite, Bot. 2.

An introductory study of the morphology, life histories, classifications, and economics of the fungi. Laboratory fee, \$3.00. Spring. (Woods.)

For Graduates

Plt. Path. 201. Virus Diseases (2-3)—Two lectures; or two lectures, one laboratory. Prerequisite, Plt. Phys. 101.

Consideration of the physical, chemical, and physiological aspects of plant viruses and plant virus diseases. The laboratory credit is earned by partially independent work. The instructor should be consulted before registering for laboratory credit. Laboratory fee, \$3.00. Spring. (Woods.)

Plt. Path. 205. Research—Credit according to work done. Summer, Fall, Spring. (Staff.)

Plt. Path. 206. Plant Disease Control (3)—Prerequisite Bot. 20 or equivalent.

An advanced course dealing with the theory and practices of plant disease control. A good general knowledge of elementary plant pathology is presupposed. Fall. (Jeffers, Jehle, Cox, Woods.)

Plt. Path. 209—Seminar (1).

Attention is given to the advanced technical literature of phytopathology. Fall, Spring. (Woods.)

C. Plant Physiology

For Advanced Undergraduates and Graduates

Plt. Phys. 101. Plant Physiology (4)—Two lectures; two laboratories. Prerequisite, Bot. 1.

A summary view of the general physiological activities of plants. The aim in this course is to stress principles rather than factual details. Laboratory fee, \$3.00. Fall. (Brown.)

Plt. Phys. 102. Plant Ecology (3)—Two lectures; one field trip. Prerequisites, Bot. 1 and Bot. 50.

The study of plants in relation to their environments. Plant formations and successions in various parts of the country are briefly treated. Much of the work, especially the practical, must be carried on in the field, and for this purpose type regions adjacent to the University are selected. Students pay cost of field trips. Summer, Spring. (Brown.)

For Graduates

Plt. Phys. 201. Plant Metabolism (2)—Prerequisite, an elementary knowledge of plant physiology and organic chemistry.

An advanced course in plant physiology, in which the chemical aspects are especially emphasized. Spring. (Appleman.)

Plt. Phys. 202 A. Plant Biophysics (2)—Prerequisites, Bot. 1, Plt. Phys. 101, or equivalent.

An advanced course dealing with the operation of physical forces in plant life processes. Students electing this course should elect Plt. Phys. 202 B. Fall. (Not offered 1942-43.) (Appleman, Shirk.)

Plt. Phys. 202 B. Biophysical Methods (2)—Two laboratories. Laboratory fee, \$3.00. Fall. (Not offered 1942-43.) (Shirk.)

Plt. Phys. 204. Growth and Development (2)—Prerequisite, 12 hrs. plant science. Fall. (Appleman.)

Plt. Phys. 205.—Mineral Nutrition Seminar (1)—Prerequisite, permission of the instructor.

Students are required to prepare reports on papers in the current literature. These are discussed in connection with the recent advances in the subject. Spring. (Not offered 1942-43.) (Appleman.)

Plt. Phys. 206. Research—Credit according to work done.

Students must be specially qualified by previous work to pursue with profit the research to be undertaken. Summer, Fall, Spring. (Staff.)

CHEMISTRY

PROFESSORS DRAKE, BROUGHTON, HARING, WHITE; ASSOCIATE PROFESSORS SVIRBELY, WILEY; ASSISTANT PROFESSOR CREECH; DR. OESPER, DR. REEVE, DR. WESTGATE, MR. CATE, MR. CHAPMAN, MR. CREWS, MR. DRAPER, MR. DRAWBAUGH, MR. EAKER, MR. EHRLICH, MR. GOLDMAN, MR. KAUFMAN, MR. LANDER, MR. LINNIG, MR. LONGLEY, MR. ORBAN, MR. PETERSON, MR. POWER, MR. VAN HOOK, MR. WHITON, MR. WINGATE, MR. WOODROW, MR. YOUNG, MR. YOURTEE.

A. Inorganic Chemistry

Chem. 1 A f s. General Chemistry (8)—Two lectures; two laboratories.

A study of the non-metals and metals. One of the main purposes of the course is to develop original work, clear thinking, and keen observation.

Course A is intended for students who have not had high school chemistry, or have passed their high school chemistry with a grade lower than B. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring.

Chem. 1 B f s. General Chemistry (8)—Two lectures; two laboratories.

This course covers the same ground as Chem. 1 A f s, but the subject matter is taken up in more detail, with emphasis on chemical theory and important generalization. The laboratory work deals with fundamental principles, the preparation and purification of compounds, and a systematic qualitative analysis of the more common metals and acid radicals.

Course B is intended for students who have passed an approved high school chemistry course with a grade not lower than B. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring.

Chem. 2 f s. Qualitative Analysis (6)—Two lectures and one laboratory during the first semester; one lecture and two laboratories during the second semester. Prerequisite, Chem. 1 f s.

A study of the reactions of the common metals and the acid radicals, their separation and identification. The physical and chemical principles are stressed. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring.

Chem. 3 f s. Introductory Chemistry (6)—Two lectures; one demonstration.

The subject matter is essentially the same as that of Chem. 1 A. This course is designed for students desiring some knowledge of elementary chemistry. It is not accepted as a prerequisite for advanced chemistry courses. Laboratory fee, \$3.00 per semester. Summer, Fall.

For Graduates

Chem. 200 A f s. The Chemistry of the Rarer Elements (4)—Prerequisite, Chem. 2 f s.

A course devoted to the study of the elements not usually considered in the elementary course. Summer, Fall. (White.)

Chem. 200 B f s. Advanced Inorganic Laboratory (4)—Two laboratories. Prerequisite, consent of instructor.

A laboratory study of the compounds of elements considered in Chem. 200 A f s. Laboratory fee, \$7.00 per semester. Fall. (White.)

Chem. 201. An Introduction to Spectrographic Analysis (1).

A laboratory course designed to acquaint the student with the fundamentals of spectrographic analysis. Laboratory fee, \$7.00. Summer, Fall. (White.)

Chem. 233. Inorganic Microanalysis (2)—Two laboratories. Prerequisites, Chem. 2 f s, 6 f s, or equivalent.

A laboratory course designed to acquaint students with the qualitative and quantitative techniques available for the analysis of milligram samples.

The qualitative procedures are carried out on the microscope slide, in the microcentrifuge cone, in the capillary, and in the fibre. The quantitative procedures include residue determinations, the use of the filter stick, etc. Laboratory fee, \$8.00. Summer, Fall. (Westgate.)

B. Analytical Chemistry

Chem. 4. Quantitative Analysis (4)—Two lectures; two laboratories. Prerequisite, Chem. 1 f s.

Quantitative analysis for premedical students, with special reference to volumetric methods. Laboratory fee, \$7.00. Summer, Fall, Spring.

Chem. 6 f s. Quantitative Analysis (8)—Two lectures; two laboratories. Prerequisite, Chem. 2 f s.

This course includes a study of the principal operations of gravimetric and volumetric analysis, the standardization of weights and apparatus used in analytical work and a study of indicators and typical colorimetric methods. The calculations of volumetric and gravimetric analyses are emphasized. Required of all students whose major is chemistry. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring.

For Advanced Undergraduates and Graduates

Chem. 101 f s. Advanced Quantitative Analysis (8)—Two lectures; two laboratories. Prerequisite, Chem. 6 f s or equivalent.

The first semester is devoted to mineral and gas analysis. During the second semester the emphasis is on instrumental analysis. Laboratory fee, \$7.00 per semester. (Not offered 1942-43.) (Svirbely.)

Chem. 130, 131. Chemical Microscopy (2, 2)—One lecture; one laboratory. Prerequisite, special permission of instructor.

A course designed to acquaint the student with the fundamentals of microscopic analysis. The latter part of the course is devoted to a study of textile fibers. Laboratory fee, \$7.00 per semester. Fall, Spring. (Svirbely.)

For Graduates

Chem. 240. Chemical Microscopy (2)—One lecture; one laboratory.

A more extensive course than Chem. 130, designed to acquaint the student with the fundamentals of microscopic analysis. Laboratory fee, \$7.00. Fall. (Svirbely.)

Chem. 241. Chemical Microscopy (2)—One lecture; one laboratory. Prerequisite, Chem. 240.

A course devoted to the study of the optical properties of crystals. Laboratory fee, \$7.00. Spring. (Svirbely.)

Chem. 243, 245. Special Problems in Quantitative Analysis (2, 2)—Two laboratories. Prerequisite, Chem. 6 f s. Laboratory work and conferences.

A complete treatment of some special problem or problems, chosen to meet the needs and interest of the individual student. Laboratory fee, \$7.00 per semester. Fall, Spring. (Svirbely.)

C. Organic Chemistry

Chem. 8 A f s.—Elementary Organic Chemistry (4)—Prerequisite, Chem. 1 f s.

This course includes an elementary study of the fundamentals of organic chemistry, and is designed to meet the needs of students specializing in chemistry, and of premedical students. Summer, Fall, Spring.

Chem. 8 B f s. Elementary Organic Laboratory (4)—Two laboratories.

A course designed to familiarize the students with the fundamental methods of the organic laboratory. This course, with Chem. 8 A f s, satisfies the premedical requirements in organic chemistry. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring.

For Advanced Undergraduates and Graduates

Chem. 116 f s. Advanced Organic Chemistry (4)—Prerequisites, Chem. 8 A f s, 8 B f s, or equivalent.

A course devoted to a more advanced study of the compounds of carbon than is undertaken in Chem. 8 A f s. Graduate students who desire an accompanying laboratory course should elect Chem. 205 and/or 207. Summer, Fall, Spring. (Drake.)

Chem. 117 f s. Organic Laboratory (4)—One lecture; one or two laboratories.

A course devoted to a study of organic qualitative analysis. The work includes the identification of unknown organic compounds, and corresponds to the more advanced course, Chem. 207. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring. (Reeve.)

Chem. 118 f s. Advanced Organic Laboratory (2)—One laboratory.

A study of organic quantitative analysis and the preparation of organic compounds. Quantitative determinations of carbon and hydrogen, nitrogen, and halogen are carried out, and representative syntheses, more difficult than those of Chem. 8 B f s, are studied. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring. (Reeve.)

For Graduates

Chem. 203 A. Stereochemistry (2).

A comprehensive study of stereoisomerism. Fall. (Drake.)

Chem. 203 B. The Polyene Pigments, and Certain Vitamins (2)—(Not offered 1942-43.)

A study of the structure and reactions of the more important polyene pigments and those vitamins whose structure is known. (Drake.)

Chem. 203 C.—Sterols and Sex Hormones (2).

A study of the structure and reactions of the more important sterols, and the sex hormones. (Not offered 1942-43.) (Drake.)

Chem. 205. Organic Preparations (2-4)—Two or four laboratories.

A laboratory study of the synthesis of various organic compounds and of the quantitative methods of determining carbon and hydrogen, nitrogen, and halogen in organic compounds. Laboratory fee, \$8.00. Summer, Fall, Spring. (Reeve.)

Chem. 206. Organic Microanalysis (4)—Prerequisite, consent of the instructor.

A laboratory study of the methods of Pregl for the quantitative determination of halogen, nitrogen, carbon, hydrogen, methoxyl, etc. Laboratory fee, \$8.00. Summer, Fall, Spring. (Drake.)

Chem. 207. Organic Qualitative Analysis (2-6).

Laboratory work devoted to the identification of pure organic substances and of mixtures. This course serves as an intensive preparation for the problems of identification encountered in organic research, and should be taken by all students planning to do research in organic chemistry. Laboratory fee, \$8.00. Summer, Fall, Spring. (Reeve.)

Chem. 209. The Chemistry and Biochemistry of Certain Enzymes and Polysaccharides (2)—(Not offered 1942-43.) (Pigman.)

Chem. 210. Advanced Organic Laboratory (2-3)—Two or three laboratories. Prerequisites, Chem. 205, 207, or equivalent.

A laboratory course designed to fit the needs of a student about to begin research in organic chemistry. The course consists of work on the identification of mixtures of organic compounds, difficult syntheses and ultimate analyses for carbon and hydrogen, nitrogen, and halogen but can be varied to fit the needs of the individual student. Laboratory fee, \$8.00. Summer, Fall, Spring. (Reeve.)

Chem. 235 A. Chemistry of Certain Nitrogen Compounds (2)—(Not offered 1942-43.)

A study of the chemistry of open chain nitrogen compounds and of alkaloids. (Reeve.)

Chem. 235 B. Physical Aspects of Organic Chemistry (2).

The practical applications of modern theories of physics and physical chemistry to the problems of structure and reactions of organic substances. Spring. (Reeve.)

Chem. 235 C. The Heterocyclics (2).

A study of some of the heterocyclic compounds with special reference to those related to natural products. (Not offered 1942-43.) (Reeve.)

D. Physical Chemistry**For Advanced Undergraduates and Graduates**

Chem. 102 A f s.—Physical Chemistry (6)—Prerequisites, Chem. 6 f s; Phys. 2 f s; Math. 23 f s.

Graduate students taking laboratory will elect Chem. 231, 232; undergraduates will elect Chem. 102 B f s.

This course aims to furnish the student with a thorough background in the laws and theories of chemistry. The gas laws, kinetic theory, liquids, solutions, elementary thermodynamics, thermochemistry, equilibrium, chemical kinetics, electrochemistry, etc., will be discussed. Summer, Fall, Spring. (Haring.)

Chem. 102 B f s. Physical Chemistry Laboratory (4)—Two laboratories. For undergraduates taking Chem. 102 A f s. Prerequisite, Chem. 4.

The course consists of quantitative experiments designed to demonstrate physico-chemical principles, illustrate practical applications and acquaint the student with precision apparatus. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring. (Oesper.)

Chem. 103 A f s. Elements of Physical Chemistry (4)—Prerequisites, Chem. 1 f s; Phys. 1 f s; Math. 8, 9; or 21, 22. Undergraduates taking this course must also register for Chem. 103 B f s.

The course is designed to meet the needs of premedical students and others unable to pursue the subject farther. Accordingly, such topics as solution theory, colloid chemistry, reaction rates, equilibrium, the methods for determining pH, etc., are stressed. Summer, Fall, Spring. (Oesper.)

Chem. 103 B f s. Elements of Physical Chemistry Laboratory (2)—One laboratory. This course must be taken by undergraduates enrolled in Chem. 103 A f s. Prerequisite, Chem. 4.

Numerous quantitative experiments illustrating the principles discussed in Chem. 103 A f s are performed. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring. (Oesper.)

For Graduates

Note: All courses in this group have, as prerequisites, Chem. 102 A f s for lecture courses and Chem. 102 B f s for laboratory courses, or their equivalents.

Chem. 202 f s. Theory of Solutions (4).

A systematic study of the theories and properties of solutions. Subjects considered are solubility, regular solutions, dielectric polarization, solution kinetics, and theories of dilute and concentrated electrolytes. Fall, Summer. (Not offered 1942-43.) (Svirbely.)

Chem. 212 A f s.—Colloid Chemistry (4).

A discussion of the effects of surface on chemical reactions; numerous practical applications. (Not offered 1942-43.) (Haring.)

Chem. 212 B, 213 B. Colloid Chemistry Laboratory (2, 2)—Two laboratories, which must accompany or be preceded by Chem. 212 A f s. Laboratory fee, \$7.00 per semester. (Not offered 1942-43.) (Haring.)

Chem. 214. Structure of Matter (2).

A study of the structure of atoms, molecules, solids and liquids. Molecular structure and related topics will be studied from the standpoints of dipole moments, Raman spectra, and infra-red spectra. Fall. (Oesper.)

Chem. 215. Valence Theory (2).

A continuation of Chem. 214. A study of the various forms of chemical binding. Summer. (Not offered 1942-43.) (Oesper.)

Chem. 216. Phase Rule (2).

A systematic study of heterogeneous equilibria. One, two, and three component systems will be considered, with practical applications of each. Fall. (Not offered 1942-43.) (Haring.)

Chem. 217. Catalysis (2).

This course consists of lectures on the theory and applications of catalysis. (Not offered 1942-43.) (Haring.)

Chem. 218, 219. Reaction Kinetics (2, 2).

A study of reaction velocity and mechanisms of reactions in gaseous and liquid systems, and the effect of temperature, radiation, etc., on the same. (Not offered 1942-43.) (Oesper.)

Chem. 220 A f s. Electrochemistry (4).

A theoretical discussion coupled with practical applications. Fall, Spring. (Haring.)

Chem. 220 B, 221 B. Electrochemistry Laboratory (2, 2)—Two laboratories, which must accompany or be preceded by Chem. 220 A f s. Laboratory fee, \$7.00 per semester. Fall, Spring. (Haring.)

Chem. 226 f s. Chemical Thermodynamics (4).

A study of the methods of approaching chemical problems through the laws of energy. (Not offered 1942-43.) (Haring.)

Chem. 231, 232. Physical Chemistry Laboratory (2, 2)—Two laboratories. Must accompany or be preceded by Chem. 102 A f s. Laboratory fee, \$7.00 per semester. Summer, Fall, Spring. (Oesper.)

Chem. 244. Selected Topics in Physical Chemistry (2 or 4).

A survey of some of the more important aspects of solutions, electrochemistry, kinetics and thermodynamics. The course is made flexible to meet the needs of the class. (Not offered 1942-43.) (Haring.)

Chem. 246. Quantum and Statistical Mechanics (2).

A continuation of Chem. 215. The application of quantum and statistical mechanics to the solution of rate problems. Fall. (Not offered 1942-43.) (Oesper.)

E. Biological Chemistry**Chem. 12 A f s. Elements of Organic Chemistry (4).**

The chemistry of carbon and its compounds in relation to biology. This course is particularly designed for students in Agriculture and Home Economics. Summer, Fall, Spring.

Chem. 12 B f s. Elements of Organic Laboratory (2)—One laboratory.

A course designed to familiarize the student with the fundamental methods of the organic laboratory. The course is designed to accompany Chem. 12 A f s. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring.

Chem. 14. Chemistry of Textiles (3)—Two lectures; one laboratory. Prerequisites, Chem. 12 A f s, 12 B f s.

A study of the principal textile fibers, their chemical and mechanical structure. Chemical methods are given for identifying the various fibers and for a study of dyes and mordants. Laboratory fee, \$7.00. Spring.

For Advanced Undergraduates

Chem. 50 A. General Physiological Chemistry (2)—Prerequisites, Chem. 12 A f s, or equivalent.

This course is designed primarily for students enrolled in the College of Home Economics, and must be accompanied by Chem. 50 B.

The course is a general survey of the chemistry of carbohydrates, lipids, amino acids, proteins, enzymes, vitamins, and hormones and includes a study of the basic principles of nutrition, metabolism, and excretion. Fall, Spring. (Creech.)

Chem. 50 B. General Physiological Chemistry Laboratory (2)—Two laboratories. Prerequisite, Chem. 12 B f s, or equivalent.

A laboratory course which must be taken in conjunction with Chem. 50 A. The laboratory schedule consists of experiments involving the subject matter of the accompanying lecture course. Laboratory fee, \$8.00. Fall, Spring. (Creech.)

For Advanced Undergraduates and Graduates

Chem. 109 A. Physiological Chemistry (2)—Prerequisite, Chem. 8 A f s. Graduate students with accredited standing in Chem. 12 A f s may register for this course.

A comprehensive study of certain aspects of the subject matter discussed in Chem. 50 A. The course will be adapted to the needs and interests of the students. Fall. (Creech.)

Chem. 109 B, 110 B. Physiological Chemistry Laboratory (2, 2) Prerequisite, Chem. 8 B f s. Graduate students with accredited standing in Chem. 12 B f s may register for this course.

For the first part of the course, the laboratory work consists of experiments on carbohydrates, lipids, amino acids, and proteins. Laboratory studies of enzymatic action, and blood, tissue and urine analyses are conducted during the second part of the course. Laboratory fee, \$8.00 per semester. Fall, Spring. (Creech.)

Chem. 115 f s. Food Analysis (4)—Two laboratories. (One hour per week is devoted to a regularly scheduled laboratory conference which must be attended by all students taking the course.) By special arrangement a student may take this course one semester for two credits. Prerequisites, Chem. 12 A f s, 12 B f s, or equivalent.

This course is designed to give the student experience in those analytical procedures of particular benefit to workers in the food industries. Particu-

lar attention is given to the problems presented in sampling, and in applying standard methods to different types of products. Instrumental analysis is stressed. Laboratory fee, \$8.00 per semester. Fall, Spring. (Wiley.)

For Graduates

Chem. 208. Biological Analysis (2)—Two laboratories.

A course in analytical methods of value to the student whose major field is in the biological sciences. The work is varied somewhat to fit the need or interest of the individual student. Laboratory fee, \$8.00. (Not offered 1942-43.) (Wiley.)

Chem. 222 A, 223 A. Advanced Physiological Chemistry (2, 2)—Prerequisites, Chem. 8 A f s or Chem. 109 A. It is also desirable that students registering for this course either have accredited standing, or be enrolled, in Chem. 116 f s.

The first part of the course will consist of a comprehensive study of carbohydrates, lipids and proteins. Enzymes, hormones, nutrition, metabolism and excretion are considered in detail during the second part of the course. Fall, Spring. (Creech.)

Chem. 222 B, 223 B. Advanced Physiological Chemistry Laboratory (2, 2)—Two laboratories. Prerequisite, Chem. 8 B f s.

This elective laboratory course is designed to accompany Chem. 222 A and Chem. 222 B and consists of experiments involving the subject matter of the lecture course. Laboratory fee, \$8.00 per semester. Fall, Spring. (Creech.)

Chem. 224, 225. Special Problems (2-4, 2-4)—Two to four laboratories. Laboratory, library, and conference work amounting to a minimum of 10 hours a week. Prerequisite, consent of the instructor.

This course consists of studies of special methods, such as the preparation of carbohydrates or amino acids, or the isolation, purification and modification of proteins, or the separation of the fatty acids from a selected fat, or the determination of the distribution of nitrogen in a protein, or the detailed analysis of some specific type of tissue, including the determination of trace elements by micro methods. The student will choose the particular problem to be studied with the advice of the instructor. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring. (Creech or Wiley.)

Chem. 250. Toxicology (4)—Two lectures; two laboratories.

A study of the common poisons, their effects and detection. Lectures by various specialists will be arranged. The problems of livestock poisoning will be discussed and the effect of spray residues taken up. (Not offered 1942-43.) (Wiley.)

F. History of Chemistry

For Advanced Undergraduates and Graduates

Chem. 121 f s. The History of Chemistry (2)—Prerequisites, Chem. 1 f s, 8 f s, or equivalent.

The development of chemical knowledge, and especially of the general doctrines of chemistry, from their earliest beginnings up to the present day. (Not offered 1942-43.) (Broughton.)

G. Seminar and Research

For Graduates

Chem. 227. Seminar (1)—Required of all graduate students in chemistry.

Students are required to prepare reports on papers in the current literature. These are discussed in connection with the recent advances in the subject. Fall, Spring. (Staff.)

Chem. 229. Research in Chemistry—The investigation of special problems and the preparation of a thesis towards an advanced degree. Summer, Fall, Spring. (Staff.)

CLASSICAL LANGUAGES AND ARCHAEOLOGY

ASSOCIATE PROFESSOR HIGHBY; MR. BANTA.

Greek

Greek 1 f s. Elementary Greek (6).

Drill and practice in the fundamentals of Greek grammar and the translation of simple prose. Fall, Spring.

Greek 2 f s. Greek Authors (6)—Prerequisite, Greek 1 f s or equivalent. Reading of parts of Xenophon, Plato and other authors. Summer, Fall.

Latin

Latin 1 f s. Elementary Latin (6).

This course is intended to give a substantial knowledge of Latin grammar and syntax. Parts of Caesar's Gallic War are read in the latter half of the second semester. (Not offered 1942-43.)

Latin 2 f s. Intermediate Latin (6)—Prerequisite, Latin 1 f s or two entrance units in Latin.

Review in forms and syntax. Readings from Cicero, Ovid and Virgil. Summer, Fall; Fall, Spring.

For Advanced Undergraduates

Latin 51. Review of Latin Literature (3)—Prerequisite, Latin 2 f s or four entrance units; three units will admit well qualified students.

A review of Latin Literature by selected readings in the Latin from the origins down to the time of the late Republic. Fall.

Latin 52. Review of Latin Literature (3)—Prerequisite, Latin 51 or equivalent, or special permission.

Review of literature continued: Age of Augustus and the Early Empire. Spring.

Latin 61. Livy's History of Rome (3)—Prerequisite, Latin 2 f s, or 4 entrance units in Latin; three units in the case of well qualified students. Summer. (Highby.)

Latin 62. Odes of Horace (3)—Prerequisite, Latin 61 or equivalent. Spring. (Highby.)

For Advanced Undergraduates and Graduates

Latin 121. Roman Prose Writers (3)—Prerequisites, 6 semester hours beyond 2 f s. Essays of Cicero and Seneca. (Not offered 1942-43.)

Latin 122. Roman Satire (3)—Prerequisite, Latin 121 or equivalent. Satires of Horace and Juvenal. (Not offered 1942-43.)

Latin 131. The Historian Tacitus (3)—Prerequisite, 12 credit hours beyond Latin 2 f s or equivalent. Annals and the Germania. Summer. (Highby.)

Latin 132. Martial, Selected Epigrams (3)—Prerequisite, as for Latin 131. (Not offered 1942-43.)

Latin 141. Lucretius, De Rerum Natura (3)—Prerequisite, 12 semester hours beyond Latin 2 f s. (Not offered 1942-43.)

Latin 151. Advanced Latin Composition (3)—Prerequisite, 6 credit hours beyond Latin 2 f s. Fall. (Highby.)

Courses Given in English

Classics 3. Latin and Greek in Current English Usage (2).

This course aims to show how Latin roots are used in English and make for more accurate use of English vocabulary. It also supplies the basic knowledge involved in the comprehension and creation of scientific nomenclature. Spring. (Highby.)

Classics 4. Latin and Greek in Current English Usage (2).

A continuation of the course outlined above. The study of the Latin language elements is continued and that of the Greek is added.

COMMERCE AND BUSINESS ADMINISTRATION

PROFESSORS STEVENS, DEVAULT, GRUCHY, WEDEBERG; LECTURERS NEVINS, RIGGLEMAN; ASSOCIATE PROFESSORS BENNETT, MARSHALL, WYCKOFF; ASSISTANT PROFESSORS CISSEL, CLARK, COSTANZO, FISHER, GAY, KIRKPATRICK; MR. REID, MR. SHIRLEY, MR. BENTON, MR. GOTTLIEB, MR. GREENFIELD.

Some of the specialized courses in the following lists may be offered only in alternate years, whenever prospective enrollments therein do not justify repeating annually. Such courses are indicated by an asterisk.

Accounting

Acct. 31 f s. Principles of Accounting (8)—Three lectures; one laboratory.

This course has two aims, namely, to give the prospective business man an idea of accounting as a means of control, and to serve as a basic course for advanced and specialized accounting. A study is made of methods and procedures of accounting in the sole proprietorship, partnership, and corporation. Summer, Fall, Spring.

For Advanced Undergraduates

Acct. 91. Apprenticeship in Public Accounting (0)—Open only to seniors in the upper ten per cent of the class. Prerequisites, Acct. 171, 172 (credit or concurrent registration).

A one month's apprenticeship with nationally known firms from about January 15 to February 15. Fall, Spring.

For Advanced Undergraduates and Graduates

Acct. 101. Advanced Accounting (5)—Prerequisite, Acct. 31 f s.

Advanced theory and problems in connection with the following: working papers; statements; corporations; actuarial science; cash; accounts receivable; notes and acceptances; inventories; consignments; installment sales; tangible fixed assets; intangible assets; investments; liabilities; funds and reserves; correction of statements and books; comparative statements; the analysis of working capital; miscellaneous ratios; profit and loss analysis; and statement of application of funds. Summer, Fall. (Cissel.)

Acct. 121. Cost Accounting (5)—Prerequisite, 31 f s.

Job lot and process costs; preparation of analytical statements; comparative statements; process cost accounting; standard costs; analysis of variances; accounting for standard costs; estimating cost systems; special considerations; arguments for and against including interest on investments; graphic charts; uniform methods. Advanced theory and problems. Fall, Spring. (Cissel.)

Acct. 161. Income Tax Procedure (3)—Prerequisite, Acct. 102.

Income tax in theory and practice. Selected cases and problems illustrating the definition of taxable income of individuals, corporations, and estates. Fall. (Wedeborg.)

Acct. 162. Governmental Accounting (3)—Prerequisite, Acct. 102.

Fund accounting, and its application to governmental and war agencies. Fall. (Wedeborg.)

Acct. 171. Auditing Theory and Practice (5)—Prerequisite, Acct. 102.

Principles of auditing, including a study of different kinds of audits, the preparation of reports, and illustrative cases or problems. Fall, Spring. (Cissel.)

Acct. 181. Specialized Accounting (5)—Prerequisite, Acct. 102.

Accounting for partnerships; ventures; insurance; receiverships; branches; consolidations; mergers; foreign exchange; estates and trusts; budgets; public accounts; savings banks; commercial banks; national banks; building and loan associations; stock brokerage; consignments; department stores; real estate; extractive industries; hotels; government; electric utilities; and others. Fall, Spring. (Wedeborg.)

Acct. 186. C. P. A. Problems (3)—Prerequisite, consent of the instructor.

This course is arranged to coordinate all previous work in accounting with special emphasis on the solution of practical C. P. A. problems and the discussion of C. P. A. theory. Spring. (Wedeborg.)

For Graduates

Acct. 228, 229. Accounting Systems (3, 3)—Prerequisites, credit for, or registration in Acct. 181, 182.

A discussion of the more difficult problems in connection with the industries covered in Acct. 181, 182. Also includes the statement of affairs; realization and liquidation account; parent and subsidiary accounting; and financing. Fall, Spring. (Wedeborg.)

Acct. 298, 299. Seminar in Accounting (3)—Prerequisites, preliminary courses in the field of specialization, and permission of the instructor. Fall, Spring. (Wedeborg.)

BUSINESS ORGANIZATION AND MANAGEMENT

Bus. 1. Economic Geography (3)—For freshmen. Sophomores admitted with consent of instructor.

A study of economic and physical factors which are responsible for the location of industries and which influence the production, distribution, and exchange of goods throughout the world. This course deals primarily with regional geography; that is, the industrial development and commerce of the separate regions and countries with especial reference to the U. S. (Not offered 1942-43.)

Bus. 4. Development of Commerce and Industry (3)—For freshmen. Sophomores admitted with consent of instructor.

Ancient and medieval economic organization. The guild, domestic, and mercantile systems. The industrial revolution, laissez-faire, modern industrial and commercial organizations in Europe and America. Post-war restrictions on commerce. Summer, Fall.

Bus. 5. Business Organization (3)—For freshmen. A survey course in business organization and operation. Spring.

For Advanced Undergraduates

Bus. 71. Fundamentals of Business Administration (2)—For juniors and seniors in colleges other than Commerce.

An analysis of the business structure, showing the functions of production, marketing, and finance, and the use of the tools of accounting and statistics. (Not offered 1942-43.) (Reid.)

Bus. 91. Supervised Practice in Cooperation (2)—Prerequisites, Bus. 161 and consent of the instructor.

This practical work under guidance in an approved cooperative organization may be arranged for any period during the year. The method of individual conferences, reports, and supervised collateral reading is utilized. Summer, Fall, Spring. (L. Clark.)

Bus. 92. Supervised Practice in Transportation (2)—Prerequisites, Bus. 112 and consent of instructor.

Practical work under guidance in an approved transportation agency. The method of individual conferences, reports, and supervised collateral reading. Summer, Fall, Spring. (Gay.)

Bus. 94. Supervised Practice in Foreign Trade (2)—Prerequisites, credit or concurrent registration in Bus. 102 and any other specialized course needed for proper understanding of a particular business, such as Bus. 112, and Mkt. 122. Consent of the instructor is necessary.

Practical work under guidance in an approved exporting or importing house. Individual conferences, reports, and supervised collateral reading. Summer, Fall, Spring. (Gay.)

The following course may also be counted in this group:

L. S. 2. Sources of Business Information.

For Advanced Undergraduates and Graduates

Bus. 102. Trade (3)—Prerequisites, Econ. 31, 32; Bus. 4, or consent of instructor.

A study of the basic principles and practices of foreign trade, its development and significance in relation to domestic commerce and national development. Modern commercial policies, the tariff controversy, and the growth of economic nationalism. Fall. (Gay.)

Bus. 112. Principles of Transportation (3)—Prerequisites, Econ. 31, 32, or 37.

A study of the development of transportation facilities in the United States, and the regulatory measures that have accompanied this development. The principles of railway rates and tariffs and their effects on agricultural and business organization. Changing transportation methods; the modern "railroad problem." Fall. (Gay.)

Bus. 133. Industrial Relations (3)—Prerequisites, Econ. 31, 32.

A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation, and conciliation; collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation, and injunctions. Fall. (Marshall.)

Bus. 137. Industrial Management (3)—Prerequisites, Econ. 31, 32, or 37, Bus. 111, Mkt. 101, or consent of the instructor.

The course is based upon analysis of actual business cases concerned with various aspects of managements' problem of production, including particularly the following: specialization of plant, equipment, and labor; simplification, standardization; diversification; expansion; contraction; integration; raw materials supply; purchasing; plant location; plant layout; labor supply; job standards and wage payment; personnel relations; planning and scheduling; organization and control. Summer, Fall, Spring. (Wyckoff.)

Bus. 141. World Resources and Industries (3).

Economic, political and geographic factors affecting the distribution of industries. Problems of industrial migration, land utilization, and regional planning. Effects of resource patterns upon current world economic and political developments. Summer, Spring. (Gay.)

Bus. 161. Fundamentals of Cooperative Enterprise (3)—Prerequisites, Econ. 31, 32 or 37.

The principles and development of the cooperative form of business enterprise. The achievements, potentialities, and limitations of farm supply, financial, home supply, marketing, medical, and producer cooperatives. Summer, Spring. (L. Clark.)

Bus. 164, 165. Business Law (3, 3)—Prerequisite, junior standing.

Legal aspects of business relationships, contracts, negotiable instruments, agency, partnerships, corporations, real and personal property, and sales. Section A is a more intensive treatment of the law of contracts, sales, negotiable instruments, agency and partnerships than is given in Section B, and is designed to prepare students for the accounting profession in Maryland. Summer, Fall, Spring. (Fisher, Shirley.)

Bus. 166. Advanced Business Law (2)—Prerequisites, Bus. 164 and 165.

The principles of the law of corporations, trusts, and the administration of the estates of bankrupts and decedents, presented in a manner calculated to prepare students for the accounting profession in Maryland. Fall. (Shirley.)

Bus. 168. Business Cycles and Business Indexes (3)—Prerequisites, Stat. 15, Econ. 31, 32, consent of the instructor.

Advanced work in business and economic indexes and time series analysis. Applied to the problems of direction, classification, and control of business cycles. Spring. (Shirley.)

Bus. 172. Trade Associations (3)—Prerequisites, Econ. 31, 32.

Objectives, development, structure, and practices of trade and commercial organizations; their economic significance and responsibilities in the modern world. Fall. (L. Clark.)

Bus. 195, 196—Special Problems in Business Administration (1, 1)—Prerequisites, preliminary courses in Business Administration and the field of specialized study, high scholastic standing, and consent of the instructor.

Independent study of business problems in a specialized field. The method of individual conferences and reports is utilized. For students of initiative, resourcefulness, maturity, and high scholastic standing who wish to do extensive organized reading in a special field of business administration. Summer, Spring. (Staff.)

The following course may also be counted in this group:

Econ. 130. Labor Economics.

Econ. 131. Labor and Government.

Econ. 145. Public Utilities.

Econ. 163. Economics of Cooperatives.

Psych. 161. Personnel Management.

For Graduates

Bus. 201. Research (2-6)—Credit in proportion to work accomplished. Student must be especially qualified by previous work to pursue effectively the research to be undertaken.

Investigation or original research in problems of business organization and operation under supervision of the instructor. Summer, Fall, Spring. (Staff.)

Bus. 208. Legal Aspects of Business Organization (2)—Prerequisites, six semester hours in commercial law, twelve in accounting, nine in economics, and six in political science.

Law as an institution conditioning economic behavior. The law applicable to problems in management and production, marketing, and finance. Fall, Spring. (Shirley.)

Bus. 231, 232. Seminar in Industry, Trade and Transportation (2-3)—Prerequisites, graduate standing, preliminary courses in the field of specialization, and permission of the instructor. Fall, Spring. (Gay.)

Bus. 291, 292. Seminar in Business Organization and Management (1-3, 1-3)—Prerequisite, preliminary courses in field of specialization, a well-rounded training in economics and business administration, and permission of the instructor.

Advanced individual investigation of specific problems of business organization or management under supervision of instructor. Emphasis and credit determined each year at beginning of the course. Either semester may be taken separately. Summer, Fall, Spring. (Staff.)

ECONOMICS

Econ. 31, 32. Principles of Economics (6)—Econ. 31 is prerequisite to Econ. 32. Not open to freshmen.

A study of the general principles of economics; production, exchange, distribution and consumption of wealth. Lectures, discussions, and student exercises. Summer, Fall; Fall, Spring; Spring, Summer.

Econ. 37. Fundamentals of Economics (3)—Not open to students who have credit in Econ. 31, 32. Not open to freshmen.

A brief study of the general principles underlying economic activity. Designed to meet the needs of special technical groups, such as students of engineering, home economics, agriculture, and others who are unable to take the more complete course provided in Economics 31, 32. Summer, Fall, Spring.

The following courses may also be counted in this group:

Bus. 1. Economic Geography.

Bus. 4. Development of Commerce and Industry.

Fin. 43. Money and Banking.

For Advanced Undergraduates and Graduates

Econ. 130. Labor Economics (3)—Prerequisite, Econ. 31, 32 or 37.

Insecurity, wages and income, hours, substandard workers, industrial conflict; wage theories; the economics of collective bargaining; unionism in its structural and functional aspects; recent developments. Summer, Spring. (Marshall.)

Econ. 131. Labor and Government (3)—Prerequisite, Econ. 31, 32.

A study of society's efforts through legislation to improve labor conditions. State and federal laws and court decisions affecting wages, hours, working conditions, immigration, convict labor, union activities, industrial disputes, collective bargaining, and economic security. (Not offered 1942-43.) (Marshall.)

Econ. 136. Economics of Consumption (3)—Prerequisite, Econ. 31, 32 or 37.

The place of the consumer in our economic system. An analysis of demand for consumer goods. The need for consumer-consciousness and a technique of consumption. Cooperative and governmental agencies for consumers. Special problems. Fall. (Marshall.)

Econ. 145. Public Utilities (3)—Prerequisites, Econ. 31, 32 or 37.

Economic and legal characteristics of the public utility status; problems of organization, production, marketing, and finance; public regulation and alternatives. Fall. (Wyckoff.)

Econ. 151. Comparative Economic Systems (3)—Prerequisites, Econ. 31, 32.

An investigation of some of the more important social reform movements and programs of the modern era. The course begins with an examination and evaluation of the capitalistic system, followed by an analysis of alternative types of economic control such as socialism, communism, nazism, fascism, and the cooperative movement. Summer, Spring. (Wyckoff.)

Econ. 152. Social Control of Business (3)—Prerequisites, Econ. 31, 32 or 37.

The reasons for and the methods of avoidance, escape, and abuse of competition as a regulating force in business. Social control as a substitute for, or as a modification of, preservation of competition. Law as an instrument of social control through administrative law and tribunals. The constitutional aspects of social control. Fall. (Shirley.)

Econ. 153. Industrial Combination (3)—Prerequisites, Econ. 31, 32.

The development of industrial combinations in the United States; the causes which brought about the trust movement; trade and business methods employed by these combinations; types of big business; anti-trust legislation in this country and its effects. (Not offered 1942-43.) (Costanzo.)

Econ. 163. Economics of Cooperatives (3)—Prerequisites, Econ. 31, 32 or 37.

Analysis of and contrast between economic problems and contributions of cooperative and other types of business organizations; the significance of cooperation in the free enterprise system. Nominal fees are collected to cover the expense of occasional field trips. Fall, Spring. (L. Clark.)

Econ. 171. Economic Institutions and War (3).

An analysis of the economic causes and problems of war. Industrial mobilization; theory and techniques of price control; banking and credit control; war finance; international trade and foreign exchange controls; economic sanctions and autarchy; and the problems of readjustment in a post-war economy. Summer. (Costanzo.)

Econ. 190. Advanced Economic Principles (3)—Prerequisites, Econ. 31, 32, and consent of the instructor.

An analysis of advanced economic principles with special attention to recent developments in value and distribution theory. Summer, Spring. (Gruchy.)

Econ. 191. Contemporary Economic Thought (3)—Prerequisites, Econ. 31, 32, and consent of instructor.

A survey of recent trends in English, American and Continental economic thought, with special attention paid to the institutionalists, the welfare economists, and the mathematical economists. Fall. (Gruchy.)

Econ. 195, 196. Special Problems in Economics (1, 1)—Prerequisites, preliminary courses in Economics and in the field of specialized study, high scholastic standing, and consent of the instructor.

Independent study of economic problems in a specialized field. The methods of individual conferences and reports is utilized. For students of initiative, resourcefulness, maturity, and high scholastic standing who wish to do extensive organized reading in a special field of economics. Summer, Fall, Spring. (Staff.)

The following courses may also be counted in this group:

Bus. 102. Trade.

Bus. 112. Principles of Transportation.

Bus. 161. Fundamentals of Cooperative Enterprise.

Fin. 106. Public Finance.

Fin. 111. Corporation Finance.

Fin. 129. International Trade.

Mkt. 101. Principles of Marketing.

For Graduates

Econ. 201. Research (2-6)—Prerequisite, consent of the instructor.

Investigation or original research in problems of economics under supervision of the instructor, and the preparation of a thesis toward an advanced degree. Summer, Fall, Spring. (Staff.)

Econ. 203, 204. Seminar (2-3, 2-3)—Prerequisites, concurrent graduate major in economics or business administration and consent of instructor.

Discussion of major problems in some field of economics, or business administration. Summer, Fall, Spring. (Staff.)

Econ. 205.—History of Economic Thought (3)—Prerequisites, Econ. 31, 32.

A study of the development of economic thought and theories, including the ancients, the Greeks, the Romans, scholasticism, mercantilism, physiocrats, Adam Smith and contemporaries, Malthus, Ricardo, and John Stuart Mill. Fall, Spring. (Marshall.)

Econ. 206. Economic Theory in the Nineteenth Century (3)—Prerequisite, Econ. 205.

A study of the various schools of economic thought, particularly the classicists, the neo-classicists, the Austrians, and the socialists. Spring. (Costanzo.)

Econ. 210, 211. Seminar in Economic Investigation (1-3, 1-3)—Credit in proportion to work accomplished.

Technique involved in economic research. Practice in drawing up schedules and programs. Individual conferences and reports. Fall, Spring. (Staff.)

Econ. 233. Seminar in Industrial Relations (3)—Prerequisite, preliminary courses in the field of specialization and permission of the instructor. (Marshall.) Fall, Spring.

Econ. 252.—Seminar in Government and Business Interrelations (3)—Prerequisites, preliminary courses in the field of specialization and permission of the instructor. Fall, Spring. (Staff.)

Econ. 298, 299. Seminar in Cooperative Economics (1-3, 1-3)—Prerequisites, preliminary courses in the field of concentration and consent of the instructor.

Consideration at an advanced level of problems confronted by cooperatives. Summer, Fall, Spring. (Stevens, L. Clark.)

Finance

Fin. 43. Money and Banking (3)—Prerequisite, Econ. 31, 32.

An analysis of the basic principles of money and credit; the history of money; the operations of the commercial banking system. Fall, Spring. (Gruchy.)

For Advanced Undergraduates

Fin. 93. Supervised Practice in Finance (2)—Prerequisite, credit or concurrent registration in Finance 43 and any specialized finance courses needed for proper understanding of a particular business, such as Finance 105, 106, 111, 115, 116, 118, 125, 129, or 151. Consent of the instructor is necessary.

Actual work in an approved financial institution under guidance may be arranged for any period of the year. The method of individual conferences, reports, and collateral reading. Summer, Fall, Spring. (Gruchy.)

For Advanced Undergraduates and Graduates

Fin. 105. Consumer Financing (3)—Prerequisite, Econ. 31, 32 or 37.

The economics of installment selling; methods of financing the consumer; and operations of the personal finance company. Fall. (L. Clark.)

Fin. 106. Public Finance (3)—Prerequisite, Econ. 32 or 37.

The nature of public expenditures, sources of revenue, taxation, and budgeting. Special emphasis on the practical, social, and economic problems involved. Spring. (Gruchy.)

Fin. 111. Corporation Finance (3)—Prerequisite, Econ. 31 or 37, Acct. 31.

The organization and financing of a business enterprise. Types of securities and their utilization in apportioning income, risk, and control. Problems of capitalization, refunding, reorganization, and expansion. Procurement of capital. Public regulation of the sale of securities. Summer, Fall. (Stevens, Costanzo.)

Fin. 115. Investments (3)—Prerequisite, Finance 111.

Sources of information for the investor. Classes of investments, government bonds, municipals, real estate mortgages, public utilities, railroads, industrial securities, movement of security prices, analysis of financial statements, adapting the investment policy to the purpose and needs of the investor. Summer, Spring. (Wyckoff.)

Fin. 116. Investment Banking (3)—Prerequisite, Econ. 32.

A study of the functions and operations of investment banking institutions and their relation to the market for long-term credit, and with emphasis on the trends and problems of investment banking. (Not offered 1942-43.) (Gruchy.)

Fin. 118. Stock and Commodity Exchanges (3)—Prerequisite, Econ. 32 or 37.

An analysis of the operations of the various exchanges. Brokerage houses and methods of trading. Regulation of the exchanges. (Not offered 1942-43.) (Gruchy.)

Fin. 121. Advanced Banking Principles and Practices (3)—Prerequisite, Econ. 31 or 37, and Finance 43.

The incorporation, organization, and operation of banks. Functions of departments and problems of customer relations. Bank legislation and governmental regulation. Fall. (Gruchy.)

Fin. 125. Credits and Collections (3)—Prerequisite, Acct. 31, 32.

Nature and function of credit and use of credit instruments. Principles of credit investigation and analysis. The work of the credit manager. Spring. (Kirkpatrick.)

Fin. 129. International Finance (3)—Prerequisite, Econ. 32 or 37.

Foreign exchange theory and practice. International aspects of monetary and banking problems. International money markets. The gold problem and the Bank for International Settlements. Spring. (Gay.)

Fin. 143. Property, Casualty and Liability Insurance (2)—Prerequisites, Econ. 31, 32.

A survey of fire, ocean marine and inland marine insurance; liability risks and casualty coverages; surety and fidelity bonds; and miscellaneous insurance, coverages. Analysis of the insurance contract, kinds of carriers, application of insurance law. Economic and social implications are stressed. Summer. (Fisher.)

Fin. 144. Life, Group and Social Insurance (2)—Prerequisites, Econ. 31, 32.

Principles of life insurance, including kinds of policies, net and gross premiums, functions of the reserve, life insurance investments, state regulation, industrial insurance, group insurance and annuity contracts. Devel-

opment and present status of social insurance in the United States. The economic significance of personal insurance to the individual and to the state. Fall. (Fisher.)

Fin. 151. Real Estate (3)—Prerequisite, Econ. 32 or 37.

The principles and practices involved in owning, operating, merchandising, leasing, and appraising real estate and real estate investments. Fall. (Bennett.)

Fin. 199. Financial Analysis and Control (3)—Prerequisite, senior standing or consent of instructor, and Finance 111.

Internal administration of a business from the viewpoint of the chief executive. Departmentalization and functionalization, anticipation and budgetary control of sales, purchases, production, inventory, expenses, and assets. The coordination of financial administration. Policy determination, analysis, and testing. Spring. (Stevens, Costanzo.)

For Graduates**Fin. 229. Seminar in Finance (1-3)**—Prerequisite, graduate standing, preliminary courses in the field of specialization, and permission of the instructor.

Individual study of specific problems as directed by the instructor. Fall, Spring. (Stevens, Gruchy.)

MARKETING**For Advanced Undergraduates**

Mkt. 91. Supervised Practice in Marketing (2)—Prerequisites, credit or concurrent registration in Mkt. 101, and any specialized marketing course needed for proper understanding of a particular business, such as Mkt. 106, 108, 109, 115, or 119. Consent of the instructor is necessary; this will not be given unless the position assigned a given registrant in a commercial business is of such a nature that effective experience can be obtained. This internship may be arranged for any period of the year.

Practice in actual marketing work under guidance. The method of individual conferences, reports, and supervised collateral reading is utilized. Summer, Fall, Spring. (Stevens, Reid, Bennett.)

For Advanced Undergraduates and Graduates**Mkt. 101. Principles of Marketing (3)**—Prerequisites, Econ. 31, 32 or 37.

A study of the fundamental principles of assembling and dispersing manufactured goods; functions of wholesale and retail middlemen; branch house distribution; mail order and chain store distribution; price and price policies; price maintenance; and a discussion of the problem of distribution costs. Summer, Fall, Spring. (Bennett, Reid.)

Mkt. 106. Salesmanship (2)—Prerequisites, Econ. 31, 32 or 37, Mkt. 101 or consent of the instructor.

An analysis of the fundamental principles of salesmanship and the technique of personal presentation of ideas, goods, and services. Analysis of customer buying motives, habits, and sales reactions. Summer, Spring. (Kirkpatrick, Reid.)

Mkt. 108. Salesmanship (2)—Prerequisite, Mkt. 101.

The structure and function of the sales organization and its relation to the activities of the production and other departments. Building, training, equipping, stimulating, and supervising a sales force. Fall. (Reid.)

Mkt. 109. Principles of Advertising (3)—Prerequisites, Econ. 31, 32 or 37.

Functions and economic implications of advertising; selection and adaptation of media to various lines of business. Layouts, copy writing, and campaign planning. Objectives, appropriations, and measurements of effectiveness. Fall. (Bennett.)

Mkt. 115. Purchasing (3)—Prerequisites, Econ. 31, 32 or 37.

Ascertaining sources of supply; substitutes; utilization of catalogs, files, pooled information, and cooperative purchasing; buying on specifications, sampling, testing, bargaining, terms, discounts, relations with salesmen. Procurement, analysis, and interpretation of market and price data. Materials control. Interdepartmental and office organization. Fall. (Kirkpatrick.)

Mkt. 116. Procurement Organization and Management (3)—Prerequisites, Econ. 31, 32 or 37, and consent of instructor.

A study of the sources of the supply of defense materials and the methods and procedures used in their procurement. Substitutes and their use in defense. Analysis and interpretation of market and price data. Priorities and price controls including a study of the work of the War Production Board and the Office of Price Administration. Fall. (Kirkpatrick.)

Mkt. 119. Retail Store Management and Merchandising (3)—Prerequisite, Mkt. 101.

Retail store organization, location, and store policy; pricing policies, price lines, brands, credit policies; records as a guide to buying; budgetary control of inventory and expenses; purchasing methods; supervision of selling; training and supervision of retail sales force; administrative problems. Spring. (Kirkpatrick.)

Mkt. 122. Export and Import Trade Procedure (3)—Prerequisite, Bus. 102.

Functions of various exporting agencies; documents and procedures used in exporting and importing transactions. Methods of procuring goods in foreign countries; financing of import shipments; clearing through the

customs districts; and distribution of goods in the United States. Field trips are arranged to study actual import and export procedure. A nominal fee is collected before each trip to cover expenses incurred. (Not offered 1942-43.) (Gay.)

Mkt. 199. Research (3)—Prerequisite, nine credit hours in marketing.

A study of the methods and problems involved in marketing research. Fall, Spring. (Bennett.)

The following course may also be counted in this group:

Econ. 136. Economics of Consumption.

For Graduates

Mkt. 229 and 230. Seminar (1-3, 1-3)—Summer, Fall, Spring. (Staff.)

SECRETARIAL

Sec. 1 f s. Elementary Office Techniques (4)—Two lectures and three hours laboratory.

Elements of stenography and typewriting for all students who have not passed qualifying examinations of Sec. 3 y. Fee, \$7.50 per semester. Summer, Fall, Spring. (Sipe.)

Sec. 3 f s. Intermediate Office Techniques (6)—Three lectures and three hours laboratory. Prerequisites, Sec. 1 f s or qualifying examination.

Theory of intermediate stenography and typewriting; phonetics, grammar, and spelling; techniques of office machine organization and operation; and fundamentals of executive and secretarial duties. Fee, \$7.50 per semester. Summer, Fall, Spring. (Sipe.)

Sec. 5 f s. Secretarial Work (6)—Prerequisite, Sec. 3 f s or special permission.

Advanced dictation, proof reading, editorial duties, business communications, writing original letters from general directions, indexing and filing, and business ethics. Fee, \$7.50 per semester. Spring. (Sipe.)

For Advanced Undergraduates and Graduates

Sec. 117. Office Procedure and Equipment (3)—Prerequisite, Sec. 5 f s or special permission.

Business forms, business reports, filing systems, utilization of business statistics. Office equipment and appliances. Fee, \$7.50 per semester. (Not offered 1942-43.) (Sipe.)

Sec. 119. Office Supervision and Management (3)—Prerequisite, Sec. 117 or special permission.

Duties of the executive assistant. Training, supervising, and measuring output of stenographic and clerical workers. Office organization. Delegation and apportionment of authority and responsibility. Organization and flow charts. Interdepartmental relations. (Not offered 1942-43.) (Sipe.)

STATISTICS

The courses in Statistics are intended to provide training in the tools and methods employed in statistical description and induction, in the interpretation of statistical data presented by others, and in the gathering and organization of original data.

Stat. 14. Elements of Statistics (3)—Lectures, recitations, and laboratory. Not open to freshmen.

The purpose of this course is to give the student a knowledge of the fundamentals necessary in the further study of statistics and its applications. Fall, Summer.

Stat. 15 f s. Business Statistics (6)—Lectures, recitations, and laboratory.

The first term is devoted to the collection of data; hand and machine tabulation; graphic charting; statistical distribution; averages, index numbers; sampling; elementary tests of reliability; and simple correlations.

In the second term, seasonal variations, business cycles, trends; partial and multiple correlations; and tests of reliability and significance are developed with respect to business and economic analysis. Summer, Fall, Spring. (Shirley, Costanzo.)

For Advanced Undergraduates and Graduates

Stat. 112. Biological Statistics (3)—Prerequisite, Stat. 14, or consent of instructor.

A study of statistics pertaining to biology and its applications. Spring. (Kemp.)

Stat. 116. Statistics Design (2)—Prerequisite, Stat. 112.

A study of the principles of logical design for investigations when the resulting data are to be subjected to statistical analysis. Methods and uses of randomization, factorial design, and confounding are considered in some detail. (Not offered 1942-43.) (Kemp.)

Stat. 117, 118. Advanced Business Statistics (3, 3)—Lectures and recitations. Prerequisite, Stat. 15.

In the first term, uses of statistics, especially business and economic index numbers are analyzed and applied to problems of production, management, finance, costs, markets, communication, transportation, and general administrative efficiency. Selected case studies.

In the second term, advanced methods of correlation and other selected techniques are applied to statistical analyses of economic fluctuations, price changes, cost analysis, and market demand indexes and functions. Selected case studies. Fall, Spring. (Shirley, Costanzo.)

Stat. 131, 132. Mathematics of Statistics (2, 2)—Prerequisites, Stat. 14, Math. 23 f s.

A course dealing with the mathematics underlying the study of statistics and its applications. Fall, Spring. (Lancaster.)

Stat. 150. Problems (2-4)—Credit in accordance with work done.

To acquire training and experience in independent statistical analysis, each student will select an approved problem for organization, analysis, and presentation of results. (Not offered 1942-43.) (Kemp.)

For Graduates

Stat. 208. Special Problems (1-4)—Credit in accordance with work done.

Each student registered in this course will choose a relatively complex problem for organization, analysis, and presentation of results. (Not offered 1942-43.) (Staff.)

COMPARATIVE LITERATURE

DR. PRAHL, DR. DARBY, DR. FALLS, DR. FITZHUGH, DR. HALE, DR. MURPHY,

MR. ROBERTSON, DR. WARFEL, MISS WILCOX, DR. ZEEVELD, DR. ZUCKER.

A general prerequisite for all courses in Comparative Literature is Eng. 2, 3. Requirements for major include Comparative Literature 101, 102.

Comp. Lit. 1. Greek Poetry (2).

Homer's *Iliad* and *Odyssey* will be studied. Special emphasis is laid on the literary form and the historical and mythological background. Fall.

Comp. Lit. 2. Later European Epic Poetry (2).

Virgil's *Aeneid*, Dante's *Divine Comedy*, *Nibelungenlied*, *Song of Roland*, and other European Epics will be studied. Special emphasis is laid on their relationship to and comparison with the Greek epic. Spring.

For Advanced Undergraduates and Graduates

Comp. Lit. 101. Introductory Survey of Comparative Literature (3).

Survey of the background of European literature through study of English translations of Greek and Latin literature. Special emphasis is laid on Greek drama, along with the development of the epic, tragedy, comedy, and other typical forms of literary expression. The debt of modern literature to the ancients is discussed and illustrated. Fall. (Zucker.)

Comp. Lit. 102. Introductory Survey of Comparative Literature (3)—Continuation of Comp. Lit. 101; study of medieval and modern Continental literature. Spring. (Zucker.)

Comp. Lit. 104. The Old Testament as Literature (2).

A study of the sources, development, and literary types. Spring. (Hale.)

Comp. Lit. 105. Romanticism in France (2).

Lectures and readings in the French romantic writers from Rousseau to Baudelaire. Texts are read in English translations. Summer, Spring. (Wilcox.)

Comp. Lit. 106. Romanticism in Germany (2)—Continuation of Comp. Lit. 105.

German literature from Buerger to Heine. The reading is done in English translations. Fall. (Prah)l

Comp. Lit. 107. The Faust Legend in English and German Literature (2).

A study of the Faust Legend of the Middle Ages and its later treatment by Marlowe in *Dr. Faustus* and by Goethe in *Faust*. Summer, Spring. (Prah)l

Comp. Lit. 110. Introduction to Folklore (2).

Origin, evolution, and bibliography of types. Literary significance, as seen in the development of prose fiction. Collections, such as the Panchatantra, Seven Sages, Arabian Nights, etc., and the continuation of these tales through medieval and modern literature. (Not offered 1942-43.) (Robertson.)

Comp. Lit. 111. A Study of Literary Criticism (3).

A survey of the major schools of criticism from Plato to the present day. Fall. (Murphy.)

Comp. Lit. 112. Ibsen (2).

A study of the life and chief works of Ibsen with special emphasis on his influence on the modern drama. Fall. (Zucker.)

For Graduates

Comp. Lit. 200. The History of the Theatre (2)—Prerequisite, a wide acquaintance with modern drama and some knowledge of the Greek drama.

A detailed study of the history of the European theatre. Individual research problems will be assigned for term papers. Spring. (Hale.)

The following courses may also be counted in this group:

Eng. 104. Chaucer.

Eng. 108. Milton.

Eng. 113, 114. Prose and Poetry of the Romantic Age.

Eng. 124. Contemporary Drama.

Eng. 125. Emerson, Thoreau and Whitman.

Eng. 201. Medieval Romance in England.

Eng. 205. Seminar in Sixteenth Century Literature.

Eng. 207. Seminar in Shakespeare.

French 204 f s. Georges Duhamel.

German 203 f s. Schiller.

German 204, 205. Goethe.

Spanish 106 f s. Cervantes.

DAIRY HUSBANDRY

PROFESSORS TURK, ENGLAND; ASSOCIATE PROFESSORS BERRY, MOORE; ASSISTANT PROFESSOR HUGHES.

D. H. 1. Fundamentals of Dairying (3)—Two lectures; one laboratory. Prerequisite, Chem. 1 f s. Not open to freshmen.

This course is designed to cover the entire field of dairy husbandry. A study is made of the development and characteristics of the important breeds of dairy cattle; feeding, breeding and management of the dairy herd; calf raising; dairy organizations; production of high quality in milk; elementary judging of dairy cattle and dairy products; fitting and showing of cattle; important dairy manufacturing industries; physical and chemical properties of milk; distribution and marketing of dairy products; and the Babcock Test and other quantitative tests. Laboratory fee, \$2.00. Summer, Spring.

D. H. 30. Dairy Cattle Judging (2)—Two laboratories. Not open to freshmen.

This course offers complete instruction in the selection and comparative judging of dairy cattle. Trips to various dairy farms for judging practice will be made. Spring.

D. H. 40. Grading Dairy Products (1)—One laboratory. Not open to freshmen.

Market grades and the judging of milk, butter, cheese, and ice cream in the commercial field. Laboratory fee, \$3.00. Spring.

For Advanced Undergraduates

D. H. 50. Dairy Cattle Management (2)—Two laboratories. Prerequisite, D. H. 1.

A management course designed to familiarize students with the practical handling and management of dairy cattle. Students are given actual practice and training in the University dairy barns. Summer. (Turk, Berry.)

D. H. 54. Advanced Dairy Cattle Judging (1)—One laboratory. Prerequisite, D. H. 30.

Advanced work in judging dairy cattle. Credit only to students who do satisfactory work in competition for the dairy cattle judging team. Summer. (Turk.)

D. H. 60. Advanced Grading of Dairy Products (1)—One laboratory. Prerequisite, D. H. 40.

Advanced work in the judging of milk, butter, cheese, and ice cream. Open only to students who comprise the dairy products judging team. Laboratory fee, \$3.00. Summer. (England.)

D. H. 64. Dairy Mechanics (2)—Two laboratories. Prerequisite, D. H. 1. The theory and operation of the compression system of mechanical refrigeration. Construction, design, and care of dairy equipment; repairing, soldering, pipe fitting, and wiring. Laboratory fee, \$2.00. Fall. (Hughes.)

D. H. 68. Dairy Accounting (1)—One laboratory. Prerequisite, D. H. 1. Methods of accounting in the market milk plant and dairy manufacturing plants. Fall. (Hughes.)

D. H. 70. Dairy Plant Management (1)—One laboratory. Prerequisite, D. H. 1.

This course is designed to give the student practice in the management of a dairy manufacturing plant. The course will involve classroom instruction and a three-weeks' practice period in management of the University Plant. Summer, Spring, Fall. (Hughes.)

D. H. 72. Dairy Plant Experience (2)—Prerequisite, 10 hours of dairy husbandry.

Ten weeks' practical experience or its equivalent (following completion of junior year) in an approved market milk plant or factory manufacturing dairy products. A written report of the work is required. Summer. (England.)

For Advanced Undergraduates and Graduates

D. H. 101. Dairy Production (3)—Two lectures; one laboratory. Prerequisites, D. H. 1, A. H. 102.

A comprehensive course in dairy cattle feeding and herd management, designed for advanced students in dairy husbandry. It covers the efficient feeding of the dairy herd, including milking cows, dairy heifers, calves, and dairy bulls; common diseases of dairy cattle and their treatment; dairy farm sanitation; problems of herd management; dairy barns and equipment; and the factors essential for success in the dairy farm business. Fall. (Turk.)

D. H. 105. Dairy Breeds and Breeding (2)—One lecture; one laboratory. Prerequisites, D. H. 1, Zool. 104, A. H. 103.

A study of the historical background; characteristics; prominent blood lines; noted families and individuals of the major dairy breeds. A survey of breeding systems; genetic and environmental factors as applied to dairy cattle. The use of the pedigree, various indices, herd and production records in selection and formulating breeding programs. Spring. (Berry.)

D. H. 109. Cheese Making (3)—One lecture; two laboratories. Prerequisites, D. H. 1, Bact. 1, 5.

The principles and practice of making casein and cheese, including a study of the physical, chemical, and biological factors involved. Laboratory practice will include visits to commercial factories. Laboratory fee, \$2.00. Fall. (Hughes.)

D. H. 110. Butter Making (2)—One lecture; one laboratory. Prerequisites, D. H. 1, Bact. 1, 5.

The principles and practice of making butter, including a study of the physical, chemical, and biological factors involved. Laboratory practice will include visits to commercial factories. Laboratory fee, \$1.00. Fall. (England.)

D. H. 111. Concentrated Milks (2)—One lecture; one laboratory. Prerequisites, D. H. 1, Bact. 1, 5.

The principles and practice of making condensed milk, evaporated milk, and milk powder, including a study of the physical, chemical and biological factors involved. Laboratory practice will include visits to commercial factories. Laboratory fee, \$1.00. Spring. (England.)

D. H. 112. Ice Cream Making (3)—One lecture; two laboratories. Prerequisites, D. H. 1, Bact. 1, 5.

The principles and practice of making ice cream, sherbets, and ices, including a study of the physical, chemical, and biological factors involved. Laboratory practice will include visits to commercial factories. Laboratory fee, \$2.00. Spring. (England.)

D. H. 113. Market Milk (5)—Three lectures; two laboratories. Prerequisites, D. H. 1, Bact. 1, 5.

Commercial and economic phases of market milk, with special reference to its transportation, processing, and distribution; certified milk; commercial buttermilk; milk laws; duties of milk inspectors; distribution; milk plant construction and operation. Laboratory practice includes visits to local dairies. Laboratory fee, \$3.00. Fall. (England.)

D. H. 114. Analysis of Dairy Products (4)—Two lectures; two laboratories. Prerequisites, D. H. 1, Bact. 1, 5. Chem. 4, 12 A, 12 B.

The application of chemical and bacteriological methods to commercial dairy practice; analysis by standard chemical, bacteriological, and factory methods; standardization and composition control; tests for adulterants and preservatives. Laboratory fee, \$3.00. Summer, Spring. (England.)

D. H. 119, 120. Dairy Literature (1, 1)—Prerequisite, D. H. 1. Presentation and discussion of current literature in dairying. Fall, Spring. (England, Berry, Turk.)

D. H. 123, 124. Methods of Dairy Research (1-3, 1-3)—Credit in accordance with the amount and character of work done.

This course is designed especially to meet the needs of those dairy students who plan to enter the research or technical field of dairying.

Methods of conducting dairy research and the presentation of results are stressed. A research problem which relates specifically to the work the student is pursuing will be assigned. Fall, Spring.

(England, Berry, Moore, Turk.)

For Graduates

D. H. 201. Advanced Dairy Production (3).

A study of the newer discoveries in animal nutrition, breeding, and management. Readings and assignments. Fall. (Turk, Moore.)

D. H. 202. Dairy Technology (2).

A consideration of milk and dairy products from the physiochemical point of view. Fall. (England.)

D. H. 203. Milk Products (2).

An advanced consideration of the scientific and technical aspects of milk products. Spring. (England.)

D. H. 204. Special Problems in Dairying (1-3)—Credit in accordance with the amount and character of work done.

Special problems which relate specifically to the work the student is pursuing will be assigned. Summer, Fall, Spring. (Staff.)

D. H. 205. Seminar (1).

Students are required to prepare reports on current literature in dairy husbandry and allied fields. These reports are presented and discussed in the class. Summer, Fall, Spring. (Staff.)

D. H. 208. Research—Credit to be determined by the amount and quality of work done.

The student will be required to pursue, with the approval of the head of the department, an original investigation in some phase of dairy husbandry, carry the same to completion, and report results in the form of a thesis. Summer, Fall, Spring. (Staff.)

EDUCATION

PROFESSORS BENJAMIN, BROWN, DREW, HAND, JOYAL, LONG, McNAUGHTON; ASSOCIATE PROFESSOR BRECHBILL; ASSISTANT PROFESSOR GALLINGTON; MISS BARR, DR. CAIN, MISS SMITH, MRS. WANG, MR. WARNER, MISS WIGGIN.

A. History and Principles

Ed. 2. Introduction to Education (2)—Required of freshmen in education and of students in other colleges desiring to elect a curriculum in education.

An exploratory and finding course designed to afford students a better basis for deciding whether to enter the field of education. Types of work, supply and demand, salaries, tenure, prestige, avenues of advancement, ethics, limitations on personal freedoms, types of personal and professional competence required, requirements for teaching certificate, and bases of selection and rejection in the College of Education are among the topics included.

The selective admission testing and observational program of the College of Education is begun in this course. Summer, Fall, Spring.

Fee, \$1.00 per Semester.

Ed. 3. Educational Forum (1)—Required of all sophomores in the College of Education.

In this course the prospective teacher is introduced in a variety of ways to the various problems and processes of education around which much of the work in his later professional courses will be centered.

The selective admission testing and observation program begun in the freshman year is continued in this course, as are the organized but informal faculty guidance helps. Summer, Fall, Spring.

For Advanced Undergraduates and Graduates

Ed. 100. History of Education in the United States (2).

A study of the origins and development of the chief features of the present system of education in the United States. Summer, Fall. (Wiggin.)

Ed. 102. History of Modern Education (2).

A survey of the history of education with emphasis upon the modern period in Europe. Summer, Spring. (Long.)

Ed. 103. Theory of the Senior High School (2).

The secondary school pupilation, its nature and needs; the school as an instrument of society; relation of the secondary school to other schools; aims of secondary education; curriculum and methods in relation to aims; extra-curricular activities; guidance and placement; the school's opportunities for service to its community; teacher certification and employment in Maryland and the District of Columbia.

This course is somewhat more general than Ed. 110—Theory of the Junior High School. Summer, Spring. (Joyal.)

Ed. 105. Educational Measurements (2)—Prerequisite, consent of instructor.

A study of tests and examinations with emphasis upon their construction and use. Types of tests; purposes of testing; elementary statistical concepts, and processes used in summarizing and analyzing test results; school marks. Summer, Fall, Spring. (Brechbill, Cain.)

Ed. 107. Comparative Education (2).

A study of national systems of education with the primary purpose of discovering their characteristic differences and formulating criteria for judging their worth. Emphasis upon European systems. Fall. (Long.)

Ed. 108. Comparative Education (2).

This course is a continuation of Ed. 107, with emphasis upon the national educational systems of the Western Hemisphere. Summer, Spring. (Benjamin.)

Ed. 110. Theory of the Junior High School (2).

This course is designed to give a general overview of education in the junior high school. It includes material on the purposes, functions, and characteristics of this school unit; a study of its population, organization, program of studies, methods, staff; and other similar topics, together with their implication for prospective teachers. Summer, Spring. (Joyal.)

Ed. 112. Educational Sociology-Introductory (2).

This course deals with certain considerations as derived from the data of the social sciences which are germane to the work of teachers and school administrators. Prominent among those treated are the following: democratic ideology as the value benchmark for all educational endeavor; educational tasks imposed by population and technological trends; the distribution of welfare and its educational consequences; the welfare status of the school population and the consequent demands made upon the school; the selective character of the school in welfare terms and the educational implications of this class structuring; the socio-economic composition and attitudes of school board members, school administrators, and teachers and the limiting conditions which these impose upon the work of the school; the problem of securing academic freedom in the schools; the community approach to education. Summer, Fall. (Hand.)

Ed. 114. Guidance in Secondary Schools (3).

This course is primarily designed for the classroom teacher in terms of the day-by-day demands made upon him *as a teacher* in the guidance of the youth in his classes and in the extra-class activities which he sponsors. The stress throughout will be upon practical common-sense guidance procedures of demonstrated workability. A variety of practical use-materials helpful in the guidance of youth will be examined. Summer, Spring. (Hand.)

See also Agricultural Education and Rural Life.

For Graduates**Ed. 200. The Organization and Administration of Public Education (2).**

This course deals with so-called "external" phases of school administration. It includes study of the present status of public school administration; organization of local, state, and federal educational authorities; and the administrative relationships involved therein. Fall, Summer. (Not offered in Summer 1942.) (Joyal.)

Ed. 202. The Organization, Administration, and Supervision of Secondary Schools (2).

This course is designed as a continuation of Ed. 200, but may be taken independently. It includes what is called "internal" administration; the organization of units within a school system; the personnel problems involved; and such topics as schedule making, teacher selection, public relations, and school supervision. Summer, Spring. (Joyal.)

Ed. 203. High School Supervision (2).

This course will deal with the nature and functions of supervision in a modern school program; recent trends in supervisory theory and practice; teacher participation in the determination of policies; planning of supervisory programs; appraisal of teaching methods; curriculum reorganization and other direct and indirect means for the improvement of instruction. Spring. (Joyal.)

Ed. 216. School Finance and Business Administration (2).

This course deals principally with these topics: school revenue and taxation; federal and state aid and equalization; purchase of supplies and equipment; internal school accounting; and other selected problems of local school finance. Spring, Summer. (Not offered in Summer 1942.) (Joyal.)

Students qualifying for the degree of Master of Education will elect the required four semester hours of seminar work from the following list of seminars. These courses are open for election by any other graduate student in Education.

Ed. 220. Seminar in Secondary Education (2). Summer, Fall, Spring. (Hand.)**Ed. 222. Seminar in Adult Education (2). Fall. (Benjamin.)****Ed. 224. Seminar in History of Education (2). Spring. (Long.)****Ed. 226. Seminar in Administration (2). Summer, Fall. (Joyal.)****Ed. 228. Seminar in Special Education (2). Summer, Spring. (Cain.)****Ed. 230. Seminar in Science Education (2). Fall. (Brechtbill.)****Ed. 232. Seminar in Educational Sociology (2). Spring. (Hand.)****Ed. 234. Seminar in Comparative Education (2). Summer, Spring. (Benjamin.)**

Note: Ed. B236. Seminar in Vocational Education (2), commonly given in the summer session and in the Baltimore division, may be used to satisfy this requirement.

Psych. 210fs. Seminar in Educational Psychology (6) may also be used to satisfy this requirement.

Note: See also Phys. Ed. 201.

B. Educational Psychology

(For full description of these courses, see Psychology.)

Psych. 55. Educational Psychology (3).**Psych. 110. Advanced Educational Psychology (3).****Psych. 125. Child Psychology (3).****Psych. 130. Mental Hygiene (3).****Psych. 210fs. Seminar in Educational Psychology (6).**

C. Methods in High School Subjects**For Advanced Undergraduates and Graduates**

Graduate credit for courses in this section will be given only by special permission of the Graduate School upon recommendation of the College of Education.

Ed. 120. Curriculum, Instruction, and Observation-English (3)—Prerequisite, Psych. 55.

Objectives in English in the different types of high schools; selection organization of subject matter in terms of modern practice and group needs; evaluation of texts and references, bibliographies; methods of procedure and types of lessons; the use of auxiliary materials; lesson plans; measuring results. Twenty periods of observation. Summer, Fall, Spring.

(Smith.)

Ed. 122. Curriculum, Instruction, and Observation-Social Studies (3)—Prerequisite, Psych. 55.

Objectives and present trends in the social studies; texts and bibliographies; methods of procedure and types of lessons; the use of auxiliary materials; lesson plans; measuring results. Twenty periods of observation. Summer, Fall, Spring.

(Kabat.)

Ed. 124. Curriculum, Instruction, and Observation-Foreign Language (3)—Prerequisite, Psych. 55.

Objectives of foreign language teaching in the high schools; selection and organization of subject matter in relation to modern practice and group needs; evaluation of texts and references; bibliographies; methods of procedure and types of lessons; lesson plans; special devices; measuring results. Twenty periods of observation. Summer, Fall, Spring.

Ed. 126. Curriculum, Instruction, and Observation-Science (3)—Prerequisite, Psych. 55.

Objectives of science teaching; their relation to the general objectives of secondary education; application of the principles of psychology and of teaching to the science class-room situation; selection and organization of subject matter; history, trends, and status; textbooks, reference works, and laboratory equipment; technic of class room and laboratory; measurement, standardized tests; professional organizations and literature. Twenty periods of observation. Summer, Fall, Spring.

(Brechtbill.)

Ed. 128. Curriculum, Instruction, and Observation-Mathematics (3)—Prerequisite, Psych. 55.

Objectives; the place of mathematics in secondary education; content and construction of courses; recent trends; textbooks and equipment; methods of instruction; measurement and standardized tests; professional organizations and literature. Twenty periods of observation. Summer, Fall, Spring.

(Brechtbill.)

Note: See also H. E. Ed. 103. Teaching Secondary Vocational Home Economics; Ind. Ed. 162. Curriculum, Instruction, and Observation; Ed. 142. Curriculum, Instruction, and Observation-Physical Education.

Ed. 138. Visual Education (2).

Visual impressions in their relation to learning; investigations into the effectiveness of instruction by visual means; projection apparatus, its cost and operation; slides, film strips, and films; physical principles underlying projection; the integration of visual materials with organized courses of study; means of utilizing commercial moving pictures as an aid in realizing the aims of the school. Laboratory fee, \$1.00. Summer, Fall.

(Brechtbill.)

Ed. 139. Methods and Practice of Teaching (3)—Prerequisite, approval of faculty committee.

Thirty periods of observation, participation, and teaching in a high school class under the direction of the regular teacher of the class and the university supervisor. The student carries major responsibility for the instruction of the high school pupils for approximately 25 periods.

Two hours weekly of class sessions are included, in which study is made of the principles and methods of teaching.

Application forms for this course must be obtained and submitted, properly filled in, at the time of registration. Students taking this course should arrange their schedules so as to avoid serious conflicts with other courses.

E. English
L. Language
M. Mathematics
C. Commercial Subjects

SS. Social Studies
Sc. Science
P. E. Physical Education
I. Industrial Education
Fall, Spring. (Brechtbill and Staff.)

Ed. 140. Methods and Practice of Teaching (6)—Prerequisite, approval of faculty committee.

Students who register in this course serve as apprentice teachers in the high schools to which they are assigned. One-half of each school day throughout the semester is devoted to this work, which is carried on under the direction of a university supervisor. Opportunity is afforded for experience in connection with school activities, guidance, records and reports, and other phases of school life, as well as class room teaching.

Two hours weekly of class sessions are included in which study is made of the principles and methods of teaching.

Application forms for this course must be obtained and submitted, properly filled in, not less than thirty days before registration.

E. English
L. Language
M. Mathematics
C. Commercial Subjects

SS. Social Studies
Sc. Science
P. E. Physical Education
I. Industrial Education
Fall, Spring. (Brechtbill and Staff.)

*Ed. 142. Curriculum, Instruction, and Observation-Physical Education (3)—Prerequisite, Psych. 55.

Materials and procedures in relation to program planning, physical examinations, records, grading, directed observation, reports, conferences and criticisms. Twenty periods of observation. Summer, Fall, Spring.

Ed. 150, 151. Curriculum, Instruction, and Observation-Commercial Subjects (2, 2)—Prerequisite, Psych. 55.

Aims and methods for the teaching of shorthand, typewriting, and book-keeping in high schools. Twenty periods of observation. Summer, Fall, Spring.

HOME ECONOMICS EDUCATION

PROFESSOR MCNAUGHTON

For Advanced Undergraduates and Graduates

H. E. Ed. 101. Curriculum, Instruction, and Observation (3)—Required of juniors in Home Economics Education. Prerequisite, Psych. 55.

Philosophy of homemaking education; community survey; analysis of characteristics, interests, and needs of the high school girl; construction of a course of study; directed observations; use of various technics; selection of illustrative materials; the home project. Summer, Fall, Spring. (McNaughton.)

H. E. Ed. 102. Child Study (3)—Prerequisite, Psych. 55.

The study of child development in relation to the physical, mental, and emotional phases of growth; adaptation of material to teaching of child care in high school; observation and participation in a nursery school. Summer, Fall, Spring. (McNaughton.)

H. E. Ed. 103. Teaching Secondary Vocational Home Economics: Methods and Practice (3-6)—Prerequisite, H. E. Ed. 101.

Observation and teaching in a vocational department of a Maryland high school or in a junior high school in Washington. Organization of units, lesson plans, field trips; planning and supervision of home projects. After completing the teaching unit the student observes in home economics departments other than the one in which she has taught. Summer, Fall, Spring. (McNaughton.)

H. E. Ed. 104. Nursery School Techniques (2-3)—Prerequisite, Psych. 55. Not open to juniors. Designed for nursery school teachers.

Philosophy of preschool education; principles of learning; routines; study of children's interests and activities; observation and teaching in the nursery school. Summer, Spring. (McNaughton.)

*Open to men and women.

H. E. Ed. 105. Special Problems in Child Study (3)—Not open to juniors. Prerequisite, H. E. Ed. 102.

Methods and practice in nursery school; making of particular studies related to the mental, emotional, or physical development of preschool children. Summer, Spring. (McNaughton.)

H. E. Ed. 106fs. Problems in Teaching Home Economics (2).

Reports of units taught; construction of units for high school course of study; study of various methods for organization of class period; analysis of text books; evaluation of illustrative material. Fall, Spring. (McNaughton.)

For Graduates

H. E. Ed. 201. Advanced Methods of Teaching Home Economics (2-4).

Study of social trends as applied to the teaching of home economics. Summer, Fall, Spring. (McNaughton.)

H. E. Ed. 250fs. Seminar in Home Economics Education (2-4).

Summer, Fall, Spring. (McNaughton.)

INDUSTRIAL EDUCATION

PROFESSOR BROWN; ASSISTANT PROFESSOR GALLINGTON

For each semester hour of credit for shop and drawing courses two or three periods of lecture and practice are scheduled depending upon the specific needs of the course.

Ind. Ed. 1. Mechanical Drawing (2).

Fundamental practices in orthographic projection followed by auxiliary projection, the drawing of threads and bolts, working drawings and isometric views. Sketching and the use of conventions are emphasized. Laboratory fee, \$2.50. Summer, Fall.

Ind. Ed. 2. Elementary Woodworking (3).

A hand woodworking course dealing with the use and care of tools used in bench joinery. A study is made of materials and supplies, and practice is given in the fundamentals of wood finishing. Laboratory fee, \$4.00. Fall.

Ind. Ed. 21. Mechanical Drawing (2)—Prerequisite, Ind. Ed. 1 or equivalent.

A more advanced course dealing with working drawings, machine design, pattern layouts, tracing and blue-printing. Detail drawings followed by assemblies are presented. Laboratory fee, \$2.50. Summer, Spring.

Ind. Ed. 22. Machine Woodworking (3)—Prerequisite, Ind. Ed. 2 or equivalent.

Practice in the application of design and construction of projects in wood involving the use of woodworking machinery suitable for the high school shop. It includes furniture construction and machine cabinet work, with

some emphasis on manufacturing practices. Basic wood turning is taught, and practice is given in the advanced finishing methods. Laboratory fee, \$4.00. Spring.

***Ind. Ed. 23. Forge Practice (1).**

Laboratory practice in forging and the heat treatment of metals. Theory and principles of handling tools and materials in drawing out, upsetting, cutting, bending, twisting, welding, annealing, hardening, tempering and grinding of steel. Laboratory fee, \$2.00. (Not offered in 1942-43; alternate, Shop 1.) Summer, Spring.

Ind. Ed. 24. Sheet Metal Work (2).

Information is given on materials, tools and processes. Practice is given in soldering, the laying out of patterns, and the making of elementary graded projects of practical use. Laboratory fee, \$2.50. Spring.

Ind. Ed. 28. Electricity (2).

A fundamental course presenting the characteristics of wire, the electrical circuit and magnetism. Units of work in handling wire, house and signal wiring, the construction of the electromagnetic devices and simple ignition wiring are presented. Laboratory fee, \$2.50. Fall.

Ind. Ed. 41. Architectural Drawing (2)—Prerequisite, Ind. Ed. 1 or equivalent.

Practical experience is given in the design and planning of homes and other buildings. The making of working drawings, specifications and blue-prints are features in the course. Laboratory fee, \$2.50. Fall.

Ind. Ed. 48. Advanced Electricity (2).

Principles involved in A-C and D-C electrical equipment. Home appliances are studied and compared. Units include electrical heating, electrical measurements, electrical control, A-C and D-C motors, electro-chemistry, the electric arc, inductance and reactance, condensers and radio. Projects are constructed embracing the units presented. Laboratory fee, \$2.50. Spring.

For Advanced Undergraduates

Ind. Ed. 67. Cold Metal Work (2).

This course is concerned with the development of knowledges and skills involved in the design and construction of projects from band iron and other forms of mild steel. Laboratory fee, \$2.50. Summer.

Ind. Ed. 69. Elementary Machine Shop Practice (2).

Shop practicum in bench work, turning, planing, milling, and drilling. Related technical information is presented from time to time as a supplement to the various tool operations. Only students having completed elementary courses in drawing and metal work are advised to take this course. Equivalent abilities and experiences are acceptable. Spring.

*Alternate courses are offered by the College of Engineering.

***Ind. Ed. 89. Advanced Machine Shop (2)**—Prerequisite, Ind. Ed. 69 or equivalent.

Advanced shop practicum in the fundamental operations plus added units in thread cutting, grinding, boring, reaming, and gear cutting. Related technical information regarding the tool machines and materials supplement the shop work. Spring.

Ind. Ed. 94. Shop Maintenance (2)—Prerequisite, 8 semester hours of shop credit or equivalent.

Skill developing practice in the up-keep and care of school shop tools and equipment. Saw filing, the sharpening of edged power tools, the design and construction of tool racks, and the oiling of power machinery are among the main shop activities. Laboratory fee, \$2.50. Fall.

For Advanced Undergraduates and Graduates

***Ind. Ed. 110. Foundry (1).**

Laboratory practice in bench and floor molding and elementary core making. Theory and principles covering foundry materials, tools, and appliances are presented, including consideration of mixtures for casting gray iron, brass, bronze, and aluminum. Laboratory fee, \$2.00. (Not offered 1942-43, alternate, Shop 101.) Fall.

Ind. Ed. 160. Essentials of Design (2)—Prerequisites, Ind. Ed. 1 or equivalent, and approximately 8 semester hours of shop work.

A study of the basic principles of design and practice in their application to the construction of high school shop projects. It presents knowledge and develops abilities in the art elements of line, mass, color, and design, and employs laboratory activities in freehand and mechanical drawing, tracing, and blue-printing. Laboratory fee, \$2.50. Summer.

Ind. Ed. 162. Curriculum, Instruction, and Observation (3)—Prerequisite, Psych, 55.

Major functions and specific aims of industrial education; their relation to the general objectives of the junior and senior high schools; selection and organization of subject matter in terms of modern practices and needs; methods of instruction; expected outcomes; measuring results; professional standards. Twenty periods of observation. Spring. (Brown, Gallington.)

Ind. Ed. 164. Shop Organization and Management (2).

This course recapitulates methods of organization and management for teaching shop subjects. It includes organization and management of pupils; daily programs; projects; pupils' progress charts; selection, location, and care of tools, machines, equipment, and supplies; records and reports; and

*Alternate courses are offered by the College of Engineering.

good school housekeeping. Opportunity is provided for visits to industrial plants as a basis for more practical planning of shop instruction and management. Summer. (Brown.)

The following courses in Industrial Education will not be offered during the academic year 1942-43:

- Ind. Ed. 26. Art Metal Work-Elementary (2)
- Ind. Ed. 65. Hand Craft (2)
- Ind. Ed. 66. Art Metal Work-Bowl Raising (2)
- Ind. Ed. 102. Advanced Woodworking (2)
- Ind. Ed. 104. Advanced Sheet Metal Work (2)
- Ind. Ed. 106. Art Metal Work-Jewelry Work (2)
- Ind. Ed. 107. General Metal Work (2)
- Ind. Ed. 108. Experimental Electricity (2)
- Ind. Ed. 165. Evolution of Modern Industry (2)
- Ind. Ed. 166. Educational Foundations of Industrial Arts (2)
- Ind. Ed. 167. General Shop (2-4)
- Ind. Ed. 168. Trade or Occupational Analysis (2)
- Ind. Ed. 169. Construction of Vocational and Occupational Courses of Study (2)
- Ind. Ed. 170. Principles and Practices of Vocational Education (2)
- Ind. Ed. 171. History of Vocational Education (2)
- Ind. Ed. 175. Mechanical Drafting Procedures of Industry (2)
- Voc. Ed. 220. Organization, Administration, and Supervision of Vocational Education (2)
- Voc. Ed. 240. Research in Vocational Education (2)
- Voc. Ed. 250. Seminar in Vocational Education (2)

ENGINEERING

PROFESSORS STEINBERG, CREESE, HUFF, YOUNGER, CORCORAN; LECTURERS ACHENBACH, HALL, WALKER, DAVIES, BONNEY, JAFFEE; ASSOCIATE PROFESSORS HODGINS, HUCKERT,* ALLEN; ASSISTANT PROFESSORS HOSHALL, PYLE, MACHWART, LANING, GREEN, BARTON, KURZWEIL, SHREEVE; MR. SHERWOOD, MR. FRAYER, MR. HENNICK, MR. BOLDS, MR. HOGENTGLER, MR. GOHR, MR. DAYTON.

Chemical Engineering

Ch. E. 10. Water, Fuels and Lubricants (4)—Two lectures; two laboratories. Prerequisites, registration in Chem. 8 A f s, 4; Phys. 2 f s, or permission of instructor.

Laboratory work consists of exercises in the usual control methods for testing water, fuels, and lubricants, and some related engineering materials. Laboratory fee, \$8.00. Fall, Spring.

*On leave.

For Advanced Undergraduates and Graduates

Ch. E. 103 f s. Elements of Chemical Engineering (6)—Prerequisites, Chem. 1 f s, Phys. 2 f s.

Theoretical discussion of underlying philosophy and methods in chemical engineering and elementary treatment of important operations involving fluid flow, heat flow, evaporation, humidity and air conditioning, drying, distillation, and absorption. Illustrated by problems and consideration of typical processes. Summer, Fall, Spring.

Ch. E. 104 f s. Chemical Engineering Seminar (2)—Required of all undergraduate students in chemical engineering.

Students prepare reports on current problems in chemical engineering and participate in the discussion of such reports. Summer, Fall, Spring.

Ch. E. 105 f s. Advanced Unit Operations (10)—Two lectures, three laboratories. Prerequisites, Ch. E. 103 f s, Chem. 102 A f s.

Advanced theoretical treatment of basic chemical engineering operations. Study and laboratory operation of small scale semi-commercial type equipment. A comprehensive problem involving theory and laboratory operations is included to illustrate the development of a plant design requiring the utilization of a number of the fundamental topics. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring.

Ch. E. 106 f s. Minor Problems (13)—Prerequisite, completion of third year chemical engineering course or permission of department of chemical engineering. Completion of or simultaneous registration in Ch. E. 105 f s. will ordinarily be required.

Original work on a special problem assigned each student, including preparation of a complete report covering the study. Laboratory fee, \$8.00 per semester. (Not offered 1942-43.)

Ch. E. 107 f s. Fuels and Their Utilization (4)—Prerequisite, Ch. E. 103 f s. or permission of department of chemical engineering.

A study of the sources of solid, liquid, and gaseous fuels, their economic conversion, distribution, and utilization. Problems. (Not offered 1942-43.) (Huff.)

Ch. E. 108 f s. Chemical Technology (4)—Prerequisite, registration in Ch. E. 103 f s, or permission of department of chemical engineering.

A study of the principal chemical industries. Plant inspections, trips, reports, and problems. Summer, Fall, Spring. (Machwart.)

Ch. E. 109 f s. Chemical Engineering Thermodynamics (4)—Prerequisites, Chem. 102 A f s., Ch. E. 103 f s.

A study of the application of the principles of engineering and chemical thermodynamics to some industrial problems encountered in the practice of chemical engineering. Summer, Fall, Spring.

Ch. E. 110 f s. Chemical Engineering Calculations (6)—Prerequisites, Math. 23 f s., Ch. E. 103 f s.

A study of methods for analyzing chemical engineering problems along quantitative and mathematical lines, with the calculus and other mathematical aids such as infinite series. Emphasis is placed on graphical presentation and the engineering utility of the results. Summer, Fall, Spring.

Ch. E. 111 f s. Explosives and Toxic Gases (4)—Prerequisites, Chem. 8 A f s., Chem. 102 A f s.

A study of the properties, production, testing, use and defense against outstanding explosives and a few of the well-known war gases. Summer, Fall, Spring.

For Graduates

Ch. E. 201 f s. Graduate Unit Operations (10 or more)—Prerequisite, permission of department of chemical engineering.

Advanced theoretical treatment of typical unit operations in chemical engineering. Problems. Laboratory operation of small scale semi-commercial type equipment with supplementary reading, conferences, and reports. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring.

Ch. E. 202. Gas Analysis (3)—One lecture; two laboratories. Prerequisite, permission of department of chemical engineering.

Quantitative determination of common gases, fuel gases, gaseous vapors, and important gaseous impurities. Problems. Laboratory fee, \$7.00. Fall, Spring.

Ch. E. 203. Graduate Seminar (1)—Required of all graduate students in chemical engineering.

Students prepare reports on current problems in chemical engineering and participate in the discussion of such reports. Summer, Fall, Spring. (Staff.)

Ch. E. 205. Research in Chemical Engineering—The investigation of special problems and the preparation of a thesis in partial fulfillment of the requirements of an advanced degree. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring. (Staff.)

Ch. E. 207A, 208A. Plant Design Studies (3, 3)—Prerequisite, permission of department of chemical engineering.

An examination of the fundamentals entering into the selection of processes, the specifications for and choice and location of equipment and plant sites. Problems. Summer, Fall, Spring. (Huff.)

Ch. E. 207B, 208B. Plant Design Studies Laboratory (2, 2)—Six hours of laboratory work which may be elected to accompany or be preceded by Ch. E. 207A, 208A. Prerequisite, permission of department of chemical engineering. Laboratory fee, \$8.00 per semester. Summer, Fall, Spring. (Machwart.)

Ch. E. 209 f s. Gaseous Fuels (4)—Prerequisite, permission of department of chemical engineering.

An advanced treatment of some of the underlying scientific principles involved in the production, transmission and utilization of gaseous fuels. Problems in design and selection of equipment. Summer, Fall, Spring. (Huff.)

Civil Engineering

For Advanced Undergraduates

C. E. 50. Hydraulics (4)—Three lectures; one laboratory. Prerequisite, Mech. 50. Required of juniors in civil engineering.

Hydrostatic pressures on tanks, dams, and pipes. Flow through orifices, nozzles, pipe lines, open channels, and weirs. Use of Reynold's number. Measurement of water. Elementary hydrodynamics. Fall, Spring. (Kurzweil.)

C. E. 51. Hydraulics (3)—Two lectures; one laboratory. Prerequisite, Mech. 50 or 51. Required of juniors in electrical and mechanical engineering.

A shorter course than C. E. 50 with emphasis on water wheels, turbines, and centrifugal pumps. Fall, Spring. (Kurzweil, Sherwood.)

C. E. 52. Curves and Earthwork (3)—Two lectures; one laboratory. Prerequisite, Surv. 2 f s. Required of juniors in civil engineering.

Computation and field work for simple, compound, and reversed circular curves; transition curves; vertical and horizontal parabolic curves; railway turnouts, track layout, and string lining of curves. Summer, Fall. (Allen.)

For Advanced Undergraduates and Graduates

C. E. 100. Theory of Structures (4)—Three lectures; one laboratory. Prerequisite, Mech. 50. Required of juniors in civil engineering.

Analytical and graphical determination of dead and live load stresses in framed structures. Influence lines for reactions, shears, moments, and stresses. Analysis of lateral bracing systems. Elements of slope and deflections. Fall, Spring. (Allen.)

C. E. 101. Elements of Highways (3)—Two lectures; one laboratory. Prerequisite, Mech. 50. Required of seniors in civil engineering.

Location, design, construction, and maintenance of roads and pavements. Laboratory problems and field inspection trips. Summer, Fall. (Steinberg.)

C. E. 102 f s. Concrete Design (7)—Three lectures; one laboratory, first semester; two lectures, one laboratory, second semester. Prerequisite, C. E. 100. Required of seniors in civil engineering.

A continuation of C. E. 100 with special application to the design and detailing of plain and reinforced concrete structures, which include slabs, columns, footings, beam bridges, arches, retaining walls, and dams. Applications of slope-deflection and moment distribution theories and rigid frames. Summer, Fall; Fall, Spring. (Allen.)

C. E. 103 f s. Structural Design (7)—Three lectures, one laboratory first semester; two lectures, one laboratory, second semester. Prerequisite, C. E. 100. Required of seniors in civil engineering.

A continuation of C. E. 100 with special application to the design and detailing of structural steel sections, members and their connections, for roof trusses, plate girders, highway and railway bridges, building, bracing systems and grillage foundations. Summer, Fall; Fall, Spring. (Allen.)

C. E. 104 f s. Municipal Sanitation (6)—Two lectures, one laboratory. Prerequisite, C. E. 50. Required of seniors in civil engineering.

Methods of estimating consumption and designing water supply and sewerage systems. Summer, Fall; Fall, Spring. (Hall.)

C. E. 105. Soils and Foundations (3)—Two lectures; one laboratory. Prerequisite, C. E. 100. Required of seniors in civil engineering.

An introductory study of the properties and behavior of soil as an engineering material. Applications to engineering construction. Fall, Spring. (Hogentogler.)

C. E. 106 f s. Thesis (3)—One laboratory, first semester; one lecture, one laboratory, second semester. Elective for seniors in civil engineering.

The student selects, with faculty approval, a subject in civil engineering design or research. He makes such field or laboratory studies as may be needed. Weekly progress reports are required, and frequent conferences are held with the member of the faculty to whom the student is assigned for advice. A written report, including an annotated bibliography, is required to complete the thesis. Summer, Fall; Fall, Spring. (Staff.)

C. E. 107. Elements of Structures (3)—Prerequisite, Phys. 117 f s. Required of seniors in chemical engineering. Open also to seniors, other than civil engineering, who have had Phys. 117 f s, Mech. 1 or Mech. 2.

Analysis and design of elementary structures of wood, steel, concrete, and reinforced concrete. Fall, Spring. (Allen.)

For Graduates

C. E. 200. Advanced Properties of Materials (3)—Prerequisite, Mech. 52 or equivalent.

A critical study of elastic and plastic properties, flow of materials, resistance to failure by fracture, impact, and corrosion, the theories of failure. Assigned reading from current literature. Summer, Fall, Spring. (Kurzweil.)

C. E. 201. Advanced Strength of Materials (3)—Prerequisite, Mech. 50 or equivalent.

Special problems in engineering stress analysis. Limitations of flexure and torsion formulas, unsymmetrical bending, curved beams, combined stresses, thin tubes, thick-walled cylinders and flat plates. Summer, Fall, Spring. (Kurzweil.)

C. E. 202. Applied Elasticity (3)—Prerequisite, Math. 114 or equivalent.

Two dimensional elastic problems, general stress-strain analysis in three dimensions, stability of beams, columns, and thin plates. Fall, Spring. (Kurzweil.)

C. E. 203. Soil Mechanics (3)—Prerequisite, C. E. 105 or equivalent.

A detailed study of the properties of engineering soils. Assigned reading from current literature. Summer, Fall, Spring. (Hogentogler.)

C. E. 204. Advanced Foundations (3)—Prerequisite, C. E. 102 f s or equivalent.

A detailed study of types of foundations. Design and construction to meet varying soil conditions. Fall, Spring. (Allen.)

C. E. 205. Highway Engineering (3)—Prerequisite, C. E. 101 or equivalent.

An intensive course in the location, design, and construction of highways. Fall, Spring. (Steinberg.)

C. E. 206 f s. Theory of Concrete Mixtures (6)—Prerequisite, Mech. 52 or equivalent.

A thorough review of the methods for the design of concrete mixtures, followed by a study of factors affecting the properties of the resulting concrete. This course is intended as a background for work in the field of concrete, concrete aggregates, or reinforced concrete. Summer, Fall; Fall, Spring. (Walker, Kurzweil.)

C. E. 207 f s. Research (2-6)—Credit in accordance with work outlined. The investigation of special problems and the preparation of a thesis in partial fulfillment of the requirements of an advanced degree. Summer, Fall; Fall, Spring. (Staff.)

Drawing

Dr. 1. Engineering Drawing (2)—Two laboratories. Required of freshmen in engineering.

Lettering, use of instruments, orthographic projection, technical sketches, dimensioning. Drawing from memory; drawing from description; inking, tracing, blueprinting, isometric and oblique projection and sections. Summer, Fall, Spring.

Dr. 2. Descriptive Geometry (2)—Two laboratories. Prerequisite Dr. 1. Required of freshmen in engineering.

Orthographic projection as applied to the solution of space problems relating to the point, line, and plane. Intersection of planes with solids; development. Applications to practical problems in engineering drafting. Summer, Fall, Spring.

Dr. 3. Advanced Engineering Drawing (2)—Two laboratories. Prerequisite, Dr. 2. Required of sophomores in civil and in mechanical engineering.

Continuation of Dr. 2, including lettering, curves, surfaces, intersections, developments, fastenings, technical sketching, working drawings and perspective. Applications to practical engineering drafting in the student's chosen professional field. Summer, Fall, Spring.

Dr. 4 f s. Mechanical Drawing (2)—One laboratory. Open to non-engineering students.

Lettering, sketching, and working drawings of machines; including conventions, tracing, isometric and cabinet projections, and blueprinting. Summer, Fall; Fall, Spring.

Electrical Engineering

E. E. 1 f s. Direct-Current Theory (5)—Two lectures, first semester; two lectures, one laboratory, second semester. Prerequisites, concurrent registration in Math. 23 f s and Phys. 2 f s. Required of sophomores in electrical engineering.

Current, voltage, power, and energy relationships in D-C networks. Working concepts of electric and magnetic potential difference, electric and magnetic field intensity, and electric and magnetic flux density. Electric and magnetic circuit experiments. Summer, Fall; Fall, Spring. (Corcoran.)

For Advanced Undergraduates

E. E. 50. Principles of Electrical Engineering (3)—Two lectures; one laboratory. Prerequisites, Phys. 2 f s, Math. 23 f s. Required of juniors in civil engineering.

Fundamentals of direct-current and alternating-current machinery; application of machines for specific duties; operating characteristics of generators, motors, and transformers. Fall, Spring. (Hodgins.)

E. E. 51 f s. Principles of Electrical Engineering (8)—Three lectures; one laboratory. Prerequisites, Phys. 2 f s, Math. 23 f s. Required of juniors in chemical and in mechanical engineering.

Study of elementary direct-current and alternating-current circuit characteristics. Principles of construction and operation of direct- and alternating-current machinery. Experiments on the operation and characteristics of generators, motors, transformers, and control equipment. Summer, Fall; Fall, Spring. (Creese, Laning.)

E. E. 52. Direct-Current Machinery (3)—Two lectures; one laboratory. Prerequisites, Phys. 2 f s, Math. 23 f s, and E. E. 1 f s. Required of juniors in electrical engineering.

Construction, theory of operation, and performance characteristics of direct-current generators, motors, and control apparatus. Experiments on the operation and characteristics of direct-current generators and motors. Summer, Fall. (Hodgins.)

E. E. 53. Electricity and Magnetism (4)—Three lectures, one laboratory. Prerequisites, E. E. 1 f s or Math. 23 f s, and Phys. 2 f s. Required of juniors in electrical engineering.

Electric and magnetic field theory with special consideration of capacitance and reluctance calculations by curvilinear-square field mapping methods. Elements of electro-chemistry. Network theorems and systematized notational schemes employed in circuit analysis. Summer, Fall. (Laning.)

For Advanced Undergraduates and Graduates

E. E. 100. Engineering Electronics (4)—Three lectures, one laboratory. Prerequisites, E. E. 53 and concurrent registration in E. E. 101. Required of juniors in electrical engineering.

Theory and application of electron tubes and associated control circuits. Emphasis on tube characteristics and electron-tube measuring devices, including the cathode-ray oscillograph as a measuring device. Applications of thyratrons and other rectifier tubes. Fall, Spring. (Laning.)

E. E. 101. Alternating-Current Circuits (6)—Five lectures, one laboratory. Prerequisite, E. E. 53. Required of juniors in electrical engineering.

Single- and polyphase-circuit analysis under sinusoidal and non-sinusoidal conditions of operation. Harmonic analysis by the Fourier series method. Theory and operation of mutually coupled circuits and of electric wave filters. Elementary concepts of symmetrical-component analysis applied only to static circuit elements. Fall, Spring. (Hodgins.)

E. E. 102 f s. Alternating-Current Machinery (10)—Three lectures, two laboratories. Prerequisite, E. E. 101. Required of seniors in electrical engineering.

The operating principles of alternating-current machinery considered from theoretical, design, and laboratory points of view. Synchronous generators and motors; single and polyphase transformers; three-phase induction generators and motors; single phase induction motors; rotary converters and mercury-arc rectifiers. One laboratory period per week devoted to theoretical and design calculations; one laboratory period per week devoted to actual laboratory tests. Summer, Fall; Fall, Spring. (Creese, Hodgins.)

E. E. 103 f s. Radio Communication (6)—Two lectures, one laboratory. Prerequisites, E. E. 100 and E. E. 101. Required of seniors in electrical engineering.

Principles of radio communication from both theoretical and laboratory points of view. Amplification, detection, and oscillation with particular emphasis on audio amplification and broadcast range reception. Summer, Fall; Fall, Spring. (Davies, Laning.)

E. E. 104. Illumination (3)—Two lectures, one laboratory. Prerequisite, E. E. 101. Senior elective.

Electric illumination; principles involved in design of lighting systems, illumination calculations, photometric measurements. Summer, Fall. (Creese.)

E. E. 105. Electric Railways (3)—Prerequisite, concurrent registration in E. E. 102 f s. Senior elective.

Mechanism of train motion. Application of electrical equipment to transportation. Construction and operation of control apparatus used in different fields of electrical transportation such as urban railways, trunk line railways, trolley busses and diesel-electric equipment. Power requirements, distribution systems and signal systems. Summer, Fall. (Hodgins.)

E. E. 106 f s. Thesis (2)—One laboratory. Elective for seniors in electrical engineering.

The student selects, with faculty approval, a special problem in electrical engineering. He makes such field or laboratory studies as may be needed. Weekly progress reports are required, and frequent conferences are held with the members of the faculty to whom the student is assigned for advice. A written report, including an annotated bibliography, is required to complete the thesis. Summer, Fall; Fall, Spring. (Staff.)

E. E. 107. Transmission Lines (3)—Prerequisite, concurrent registration in E. E. 102 f s.

Calculation of transmission line inductance and capacitance on a per-wire basis. Long-line theory applied to both power and telephone circuits. Electrical, mechanical, and economic considerations of power transmission and distribution systems. Summer, Fall. (Corcoran.)

E. E. 108. Electric Transients (3)—Prerequisite, concurrent registration in E. E. 102 f s.

Current, voltage, and power transients in lumped-parameter networks. Transient phenomena in sweep circuits and inverters. Starting transients in transformers and short-circuit transients in alternators with oscillographic demonstrations. Fall, Spring. (Corcoran.)

E. E. 109. Advanced Alternating-Current Theory (3)—Prerequisite, concurrent registration in E. E. 102 f s.

Symmetrical component analysis of power networks or high-frequency phenomena in communication networks, depending upon the predilections of the class. Fall, Spring. (Corcoran.)

For Graduates

E. E. 200. Symmetrical Components (3)—Prerequisite, E. E. 102 f s, or equivalent.

Application of the method of symmetrical components to synchronous generators, transmission lines, transformers, static loads possessing mutual coupling, and induction motor loads. Methods of measuring positive, negative, and zero sequence reactances of synchronous generators and methods of calculating these component reactances of transmission lines. Complete network solutions in terms of symmetrical components and comparison of these solutions with those obtained by classical methods. Summer, Fall, Spring. (Corcoran.)

E. E. 201. Operational Circuit Analysis (3)—Prerequisite, E. E. 102 f s or equivalent.

Solution of network transients involving both lumped and distributed circuit parameters by the method of Heaviside's operational calculus. Carson's infinite integral theorem, Duhamel's superposition theorem, Heaviside's expansion theorem and direct operational methods. Summer, Fall, Spring. (Corcoran.)

General Engineering Subjects

Engr. 1.—Introduction to Engineering (1)—Required of freshmen in engineering.

A course of lectures by the faculty and by practicing engineers covering the engineering professional fields. The work of the engineer, its requirements in training and character, and the ethics and ideals of the profession. The purpose of this course is to assist the freshman in selecting the particular field of engineering for which he is best adapted. Summer, Fall, Spring.

For Advanced Undergraduates and Graduates

Engr. 100. Engineering Law and Specifications (2)—Required of seniors in civil engineering; elective for seniors in other engineering departments.

A study of the fundamental principles of law relating to business and to engineering; including contracts, agency, negotiable instruments, corporations, and common carriers. These principles are then applied to the analysis of general and technical clauses in engineering contracts and specifications. Fall, Spring. (Steinberg.)

Mechanics

Mech. 1. Statics and Dynamics (3)—Prerequisite, Dr. 3, and to be taken concurrently with Math. 23 f s and Phys. 2 f s. Required of sophomores in civil and in electrical engineering.

Analytical and graphical solutions of coplanar and non-coplanar force systems; equilibrium of rigid bodies; suspended cables, friction, centroids and moments of inertia; kinematics and kinetics; work, power, and energy; impulse and momentum. Fall, Spring.

Mech. 2. Statics and Dynamics (5)—To be taken concurrently with Math. 23 f s and Phys. 2 f s. Required of sophomores in mechanical engineering.

Analytical and graphical solution of coplanar and non-coplanar force systems, equilibrium of rigid bodies; suspended cables, frictions, centroids and moments of inertia, kinematics and kinetics; work, power, and energy; impulse and momentum.

The course also embraces the fundamentals of kinematics necessary to the study of kinematics of machinery. Plane motion of a particle and the general laws governing the transmission of plane motion are treated by vector and graphical methods. Fall, Spring.

For Advanced Undergraduates

Mech. 50. Strength of Materials (5)—Prerequisite, Mech. 1 or 2. Required of juniors in civil and in mechanical engineering.

Riveted joints; torsional stresses and strains; beam stresses and deflection; combined axial and bending loads; column stresses; principal stresses and strains; impact and energy loads; statically indeterminate beams; shear center; unsymmetrical bending; composite members including reinforced concrete beams. Instruction in the use of an approved handbook containing the properties of rolled steel sections. Summer, Fall.

(Younger, Kurzweil, Barton.)

Mech. 51. Strength of Materials (3)—Prerequisite, Mech. 1 or 2. Required of juniors in electrical engineering.

A shorter course than Mech. 1. Instruction in the use of an approved handbook containing the properties of rolled steel sections. Summer, Fall. (Kurzweil.)

Mech. 52. Materials of Engineering (2)—One lecture; one laboratory. Prerequisite, Mech. 50 or 51. Required of juniors in civil, electrical, and mechanical engineering.

The composition, manufacture, and properties of the principal materials used in engineering, and of the conditions that influence their physical characteristics. The interpretation of specifications and of standard tests. Laboratory work in the testing of steel, wrought iron, timber, brick, cement, and concrete. Summer, Fall, Spring. (Kurzweil, Hogentogler.)

Mechanical Engineering

For Advanced Undergraduates

M. E. 50. Principles of Mechanical Engineering (3)—Two lectures; one laboratory. Prerequisites, Math. 23 f s, Phys. 2 f s. Required of juniors in civil engineering.

Elementary thermo-dynamics and the study of heat, fuel, and combustion in the production and use of steam for the generation of power. Includes study of fundamental types of steam boilers, fuel burning equipment, prime movers and their allied apparatus. Supplemented by laboratory tests and trips to industrial plants. Summer, Fall. (Shreeve.)

M. E. 51. Thermodynamics (3)—Prerequisites, Math. 23 f s, Phys. 2 f s. Required of seniors in electrical engineering.

The theory and application of thermodynamics to the steam engine, steam turbine, nozzles. The properties of vapors, cycles of heat and entropy, including discussion of machines and their uses. Summer, Fall. (Green.)

M. E. 52. Power Plants (3)—Two lectures; one laboratory. Prerequisite, senior standing. Required of seniors in electrical engineering.

A study of heat, fuel, and combustion in the production and use of steam for the generation of power. Includes the theory and operation of steam engines, boilers, condensers, steam turbines, and their accessories. Practical power problems as applied to typical power plants, supplemented by laboratory tests and trips to industrial plants. Fall, Spring. (Green.)

M. E. 53. Aerodynamics and Hydrodynamics (3)—Prerequisites, Math. 23 f s, Phys. 2 f s. Required of juniors in mechanical engineering, aeronautical option.

A study of the fundamental principles of the flow of air and of water. Applications with special reference to the airplane; airfoil and propeller theory; theory of model testing in wind tunnels; design performance calculations of airplanes. Fall, Spring. (Barton.)

For Advanced Undergraduates and Graduates

M. E. 100 f s. Thermodynamics (5)—One lecture, one laboratory, first semester; two lectures, one laboratory, second semester. Prerequisites, Math. 23 f s and Phys. 2 f s. Required of juniors in mechanical engineering.

The properties and fundamental equations of gases and vapors. Thermodynamics of heat cycles, air compressors, and steam engines. Summer, Fall; Fall, Spring. (Shreeve, Frayer.)

M. E. 101. Heating and Ventilation (3)—Two lectures; one laboratory. Prerequisite, M. E. 100 f s. Required of seniors in mechanical engineering.

The study of types of heating and ventilating systems for a particular building; layout of piping and systems, with complete calculations and estimates of costs; fundamentals of air conditioning. Summer, Fall. (Achenbach.)

M. E. 102. Refrigeration (3)—Two lectures; one laboratory. Prerequisite, M. E. 100 f s. Required of seniors in mechanical engineering.

Problems involving the different methods and processes of refrigeration. Air conditioning for offices, buildings, factories and homes. Fall, Spring. (Achenbach.)

M. E. 103 f s. Thesis (3)—One laboratory, first semester; one lecture, one laboratory second semester. Required of seniors in mechanical engineering.

The student selects, with faculty approval, a subject in mechanical engineering design or research. He makes such field or laboratory studies as may be needed. Weekly progress reports are required, and frequent con-

ferences are held with the member of the faculty to whom the student is assigned for advice. A written report, including an annotated bibliography, is required to complete the thesis. Summer, Fall; Fall, Spring. (Staff.)

M. E. 104 f s. Prime Movers (8)—Three lectures; one laboratory. Prerequisites, Mech. 50, C. E. 51. Required of seniors in mechanical engineering.

A course covering the use of prime movers to convert heat into power. It includes a study of heat, fuels and combustion processes followed by the theory, construction and operation of internal combustion engines, steam engines, boilers, condensers, steam turbines and their auxiliary equipment. Theory is supplemented by practical problems and by laboratory tests. The entire course is closely integrated with the mechanical laboratory course. Summer, Fall; Fall, Spring. (Green.)

M. E. 105 f s. Mechanical Engineering Design (7)—Two lectures, two laboratories first semester; one lecture, two laboratories second semester. Prerequisite, Mech. 50. Required of seniors in mechanical engineering.

A course embracing the kinematics and dynamics of machinery and the design of machine members and mechanisms. Special problems on the balancing, vibration, and critical speeds of machine members are treated. Summer, Fall; Fall, Spring. (Sherwood.)

M. E. 106 f s. Mechanical Laboratory (4)—One lecture; one laboratory. Prerequisite, senior standing. Required of seniors in mechanical engineering.

Calibration of instruments, gauges, indicators, steam, gas and water meters. Indicated and brake horsepower of steam and internal combustion engines, setting of valves, tests for economy and capacity of boilers, engines, turbines, pumps, and other prime movers. Feed water heaters and condensers; B. T. U. analysis of solid, gaseous, and liquid fuels; and power plant tests. Summer, Fall; Fall, Spring. (Staff.)

M. E. 107 f s. Airplane Structures (6)—Prerequisite, M. E. 53. Required of seniors in mechanical engineering, aeronautics option.

The fundamental principles of structural analysis and design of airplanes. The air worthiness requirements of the Civil Aeronautics Authority and the design requirements of the government service branches are given special consideration. Summer, Fall; Fall, Spring. (Younger.)

For Graduates

M. E. 200. Mechanics of Vibration (3)—Prerequisites, Mech. 50, Math. 114, or equivalent.

The study of characteristic mechanical vibration encountered in engineering. Analysis of simple cases of free and forced vibration with damping and the combination of several simultaneous motions. Principles of transmission, resonance and vibration isolation applied to high speed motors, wing flutter, wires and many others. Detection and measuring instruments. Examples of diagnosis and noise prevention. Summer, Fall, Spring. (Barton.)

M. E. 201. Applied Elasticity and Elastic Stability (3)—Prerequisites, Mech. 50, Math. 114, or equivalent.

General theorems on the elastic solid with applications; Saint-Venant's Principle; sudden loading and stress waves, the stress in thick tubes due to pressure, heating and rotation; bending of beams on elastic foundation; symmetrical deformation of thin tubes; fundamental stability considerations, and the buckling of struts and tubes. Summer, Fall, Spring. (Barton.)

M. E. 202 f s. Advanced Aircraft Structures (6)—Prerequisite, M. E. 107 f s or equivalent.

Methods of analysis in advanced problems of designing. Study of research reports in aircraft structures. Summer, Fall; Fall, Spring. (Barton, Younger.)

M. E. 203 f s. Advanced Hydrodynamics and Aerodynamics (6)—Prerequisite, M. E. 53 or equivalent.

Theoretical and experimental study of the flow of fluids. Summer, Fall; Fall, Spring. (Barton.)

M. E. 204 f s. Advanced Thermodynamics and Heat Transfer (6)—Prerequisites, M. E. 100 f s, 104 f s, or equivalent.

Application of the laws of thermodynamics to industrial processes. Energy transfer by radiation, conduction, and convection. Summer, Fall; Fall, Spring. (Green.)

M. E. 205. Seminar (1-3)—Credit in accordance with work outlined.

Seminars may be organized in any field of mechanical engineering for the study of general theory or specific problems. Summer, Fall; Fall, Spring. (Staff.)

M. E. 206 f s. Research (2-8)—Credit in accordance with work done. Summer, Fall; Fall, Spring. (Staff.)

Shop

Shop 1. Forge Practice (1)—One combination lecture and laboratory. Required of freshmen in engineering.

Lectures and recitations on the principles of forging and heat treatment of steel. Demonstrations in acetylene and electric welding, brazing, cutting, and case hardening. Laboratory practice in drawing, bending, upsetting, forge welding, hardening, tempering, and thread cutting. Summer, Fall, Spring.

Shop 2.—Machine Shop Practice (1)—One laboratory. Required of sophomores in electrical engineering.

Practice in bench work, turning, planing, drilling, tapping, knurling, and tool sharpening. Summer, Fall, Spring.

Shop 3. Machine Shop Practice (2)—One lecture; one laboratory. Required of sophomores in mechanical engineering.

Study of the fundamental principles of machine tools, such as lathe, planer, shaper, milling machine, drilling machine, and grinding machines. Calculation for cutting threads, spur and helical gears, fluting and cutting speeds. The laboratory work in this course is identical with Shop 2. Summer, Fall, Spring.

Shop 4. Machine Shop Practice (2)—Two laboratories. Required of juniors in Industrial Education.

Practice in bench work, turning, planing, drilling, pipe threading, thread cutting, surface grinding, and fluting and cutting spur and helical gears. Summer, Fall, Spring.

For Advanced Undergraduates

Shop 50. Foundry Practice (1)—One combination lecture and laboratory. Required of juniors in mechanical engineering.

Lectures and recitations on foundry products and layouts, materials and equipment, hand and machine moulding, cupola practice and calculating mixes. Core making, moulding, and casting in aluminum. Summer, Fall. (Hoshall.)

Shop 51. Machine Shop Practice (1)—One laboratory. Required of juniors in mechanical engineering.

Advanced practice with standard machine tools. Exercises in thread cutting, fluting, cutting spur and helical gears, jig work, and cutter and surface grinding. Fall, Spring. (Hoshall.)

Shop 52. Machine Shop Practice (2)—Two laboratories. Prerequisite, Shop 4. Required of seniors in Industrial Education.

Boring, reaming, broaching, fluting, milling, jig work, gear cutting, and sharpening milling cutters. Fall, Spring. (Hoshall.)

Surveying

Surv. 1. Elements of Plane Surveying (1)—Combined lecture and laboratory work. Prerequisites, Math. 21, 22. Required of sophomores in chemical, electrical, and mechanical engineering.

A brief course in the use of the tape, compass, level, transit, and stadia. Computation for area, coordinates, volume, and plotting. Summer, Fall, Spring.

Surv. 2 f s. Plane Surveying (5)—One lecture, one laboratory first semester; one lecture, two laboratories second semester. Prerequisites, Math. 21, 22. Required of sophomores in civil engineering.

Theory of and practice in the use of the tape, compass, transit, and level. General survey methods, traversing, area, coordinates, profiles, cross-sections, volume, stadia. Summer, Fall; Fall, Spring.

For Advanced Undergraduates and Graduates

Surv. 100. Advanced Surveying (4)—Two lectures; two laboratories. Prerequisite, Surv. 2 f s. Required of juniors in civil engineering.

Adjustment of instruments, latitude, longitude, azimuth, time, triangulation, precise leveling, geodetic surveying, together with the necessary adjustments and computations. Topographic surveys. Plane table, land surveys, and boundaries. Mine, tunnel, and hydrographic surveys. Summer, Fall. (Pyle.)

ENGLISH LANGUAGE AND LITERATURE

PROFESSORS HALE, WARFEL; LECTURER MCMANAWAY; ASSOCIATE PROFESSORS HARMAN, FITZHUGH; ASSISTANT PROFESSORS ZEEVELD, BRYAN, COOLEY, MURPHY, BALL, IDE*; MR. GRAVELY, MISS MILLER, MR. PEDEN, MR. ROBERTSON, MR. SWEARINGEN, MR. SMITH, DR. WEEKS, MRS. WARD, MR. MCCOLLOM, MRS. COE, MISS BRYAN, MISS FRANKLIN, MRS. JOSLYN, MR. LUND.

Eng. 1 f s. Survey and Composition (6)—Prerequisite, three units of high school English and successful passing of the qualifying examination given by the department, or successful completion of Eng. A. Required of all students.

A study of style, syntax, spelling, and punctuation, combined with an historical study of English and American literature of the nineteenth and twentieth centuries. Written themes, book reviews, and exercises. Summer, Fall; Fall, Spring; Spring, Summer.

Eng. A. Special Preparatory Course (0)—Prerequisite, three units of high school English. Required of all students who fail to pass the qualifying examination. Students who show sufficient progress after five weeks of Eng. A will be transferred to Eng. 1 f s. Others will continue with English A for one semester. The department reserves the right to transfer from Eng. 1 to Eng. A students who make unsatisfactory progress.

A laboratory course in grammatical and rhetorical principles designed to help students whose preparation has been insufficient for Eng. 1. Exercises, precis writing. Summer, Fall, Spring.

Eng. 2, 3. Survey and Composition (3, 3)—One general lecture given by various members of the department; two quiz sections. Prerequisite, Eng. 1 f s. Required of all students in the college of Arts and Sciences.

A continuation of work in composition based on the work accomplished in Eng. 1 f s. An historical study of English Literature from the beginning to the Romantic Age. Themes, book reports, conferences. Summer, Fall; Fall, Spring; Spring, Summer.

Eng. 4, 5. Expository Writing (2, 2)—Prerequisite, Eng. 1 f s.

A study of the principles of exposition. Analysis and interpretation of the expository essay. Themes, papers, and reports. The first semester is not prerequisite to the second semester. Fall, Spring.

*Absent on leave 1941-42.

Eng. 6. Business English (2)—Prerequisite, Eng. 4 or 5. Limited to students in Commerce.

This course develops the best methods of writing effective business letters. Spring.

Eng. 7, 8. Survey of American Literature (3, 3)—Prerequisite, Eng. 1 f s.

First semester, American thought and expression from 1607 to 1865, with emphasis upon colonial cultural patterns, upon the rise of nationalism, and upon sectional conflict. Reports and term paper.

Second semester, emphasis upon the changing social forces which influenced American writers after 1865. Reports and term paper. Summer, Fall.

Eng. 11, 12. Shakespeare (3, 3)—Prerequisite, Eng. 1 f s.

First semester, eleven significant early plays, illustrating the drama as a distinct form of art. Dramatic criticisms; preparation of acting script; experimental production.

Second semester, ten significant late plays. Fall, Spring.

Eng. 13. Introduction to Narrative Literature (3)—Prerequisite, Eng. 1 f s. Not open to Freshmen.

An intensive study of representative stories, with lectures on the history and technique of the short story and of other narrative forms. Summer.

Eng. 14. College Grammar (3)—Prerequisite, Eng. 1 f s.

Studies in the descriptive grammar of modern English. Fall, Spring.

Eng. 15. The Contemporary Novel (2)—Prerequisite, Eng. 1 f s.

A study of the contemporary novel in Britain, America, and on the Continent. (Not offered 1942-43.)

Drama 1, 2. Play Production (3, 3)—Admission by the permission of the instructor.

Fundamental principles of acting and of direction of amateur production. Each student will make a production book of one or more plays and engage in practical laboratory work. Summer, Fall.

Jour. 1 f s. Introduction to Journalism (6)—Prerequisite, Eng. 1 f s. Registration only by permission of the instructor.

A study of the elementary principles of journalism. (Not offered 1942-43.)

Jour. 15 f s. Graphic Design (4)—Prerequisite, Eng. 1 f s.

A study of typography and its application. Fall, Spring.

For Advanced Undergraduates

Eng. 50, 51. The History and Development of the Novel in England (3, 3)—Prerequisites, Eng. 2, 3.

A study of the origin and development of the novel as a literary form in England. Fall, Spring. (Ide.)

Eng. 54, 55. Playwriting (2, 2)—Prerequisites, Eng. 2, 3, or permission of the instructor.

A study of the principles involved in dramatic form and in writing dialog. Practice in the construction of one act plays. (Not offered 1942-43.) (McCollom.)

Eng. 57. Types of English Literature (3)—Prerequisites, Eng. 2, 3.

An historical and critical survey of the principal types of English Literature, with especial attention to the influence of classical myths and legends and of classical literary ideals upon English and American writers. Fall. (Harman.)

For Advanced Undergraduates and Graduates

Eng. 101. History of the English Language (3)—Prerequisite, Eng. 14.

An historical survey of the English language; its nature, origin, and development, with special stress upon structural and phonetic changes in English speech and upon the rules which govern modern usage. Summer. (Harman.)

Eng. 102. Old English (3)—Prerequisite, Eng. 14.

A study of Old English grammar and literature. Lectures on the principles of phonetics and comparative philology. Fall. (Ball.)

Eng. 103. Beowulf (3)—Prerequisite, Eng. 102.

A study of the Old English epic in the original. Spring. (Ball.)

Eng. 104. Chaucer (3)—Prerequisites, Eng. 2, 3.

A study of the *Canterbury Tales*, *Troilus and Criseyde*, and the principal minor poems, with lectures and readings on the social background of Chaucer's time. Spring. (Hale.)

Eng. 105. Medieval Drama in England (3)—Prerequisites, Eng. 2, 3.

A study of the development of medieval English drama from its beginning to 1540. Class discussion of significant plays, outside reading, reports. (Not offered 1942-43.) (Fitzhugh.)

Eng. 106. Elizabethan Drama (3)—Prerequisites, Eng. 2, 3.

A study of the change in spirit and form from 1540 to 1640, as seen in the works of the most important dramatists other than Shakespeare. Class discussion of significant plays, outside reading, written dramatic criticism. Fall. (Zeeveld.)

- Eng. 107. Renaissance Poetry and Prose (3)**—Prerequisites, Eng. 2, 3.
A study of the literary manifestations of humanism and the new national spirit in sixteenth-century England, with emphasis on the prose works of More, Lyly, Sidney, Hooker, Bacon, and the translators of the Bible, and on the poetry of Spenser. Summer. (Zeeveld.)
- Eng. 108. Milton (2)**—Prerequisites, Eng. 2, 3.
A study of the poetry and the chief prose works. Fall. (Murphy.)
- Eng. 109. Literature of the Seventeenth Century to 1660 (2)**—Prerequisites, Eng. 2, 3.
A study of the chief prose writers and of the Metaphysical and Cavalier traditions in poetry. Spring. (Murphy.)
- Eng. 110. The Age of Dryden (2)**—Prerequisites, Eng. 2, 3.
This course emphasizes the relation of literature to the philosophical movements of the age. (Not offered 1942-43.) (Murphy.)
- Eng. 111, 112. Literature of the Eighteenth Century (2, 2)**—Prerequisites, Eng. 2, 3.
First semester, readings in the period dominated by Defoe, Swift, Addison, Steele, Pope.
Second semester, Dr. Johnson and his Circle; the Rise of Romanticism; the Letter Writers. Summer, Fall. (Fitzhugh.)
- Eng. 113, 114. Prose and Poetry of the Romantic Age (3, 3)**—Prerequisites, Eng. 2, 3.
Summer semester, a study of the development of the Romantic movement in England as exemplified by the prose and poetry of Wordsworth, Coleridge, Lamb, DeQuincy, and others.
Fall semester, a study of the later Romantic writers, including Byron, Shelley, Keats, and others. Summer, Fall. (Hale.)
- Eng. 115.—Scottish Poetry (2)**—Prerequisites, Eng. 2, 3. No knowledge of the Scottish language required.
Readings in the Scottish Chaucerians; Drummond of Hawthornden; song and ballad literature; poets of the vernacular revival; Ramsey, Ferguson, and Burns. Papers and reports. (Not offered 1942-43.) (Fitzhugh.)
- Eng. 116, 117. Victorian Prose and Poetry (3, 3)**—Prerequisites, Eng. 2, 3.
A study of the chief English authors of the Nineteenth Century from the close of the Romantic Period. Fall, Spring. (Cooley.)
- Eng. 118. Modern and Contemporary British Poets (3)**—Prerequisites, Eng. 2, 3.
A study of the chief English and Irish poets of the Twentieth Century. Summer. (Murphy.)

- Eng. 123. Modern Drama (3)**—Prerequisites, Eng. 2, 3.
A survey of English Drama during the two centuries from 1660 to 1860. Class discussion of significant plays, outside reading, reports. Summer. (Fitzhugh.)
- Eng. 124. Contemporary Drama (3)**—Prerequisites, Eng. 2, 3.
A study of significant European and American dramatists from Ibsen to O'Neill. Class discussion of significant plays, outside reading, reports. Summer. (Fitzhugh.)
- Eng. 125. Emerson, Thoreau, and Whitman (3)**—Prerequisites, Eng. 7, 8.
A study of the major writings of Emerson, Thoreau, and Whitman, with emphasis on transcendentalism, idealism, and democracy. (Not offered 1942-43.) (Warfel.)
- Eng. 126. American Fiction (3)**—Prerequisites, Eng. 7, 8.
Historical and critical study of the short story and novel in the United States from 1789 to 1920. (Not offered 1942-43.) (Warfel.)
- Eng. 127. Contemporary American Poetry and Prose (3)**—Prerequisites, Eng. 7, 8.
Tendencies and forms in non-dramatic literature since 1920. Summer. (Warfel.)
- Eng. 128. American Drama (3)**—Prerequisites, Eng. 7, 8.
Historical study of representative American Plays and playwrights, from 1787 to 1920. Fall. (Warfel.)
- Eng. 134. Playwriting (2)**—Two lectures. (Not offered 1942-43.) (McCollom.)
- Eng. 135. Introduction to Creative Writing (2)**—Prerequisites, Eng. 2, 3.
Theory and practice in the short story and lyric, with some study of the novelette and play at the election of the class. Major students in English must elect either this course or Eng. 136. Summer, Fall. (Bryan.)
- Eng. 136. Magazine Writing (2)**—Prerequisites, Eng. 2, 3.
The production and marketing of such literature forms as the magazine article, the personal essay, the biographical essay, and the book review. Fall. (Bryan.)
- Eng. 137. Advanced Creative Writing (2)**—Prerequisite, Eng. 135, or 136; open to other advanced students by permission of the instructor after submission of an original composition. This course may be taken twice for credit.
Study and exercise in original literary expression as an interpretative art. Spring. (Bryan.)

Eng. 140. Major American Poets (3)—Prerequisites, Eng. 2, 3.

Intensive study of the poetry and poetic theories of the major American poets since Bryant. Spring. (Warfel.)

Eng. 141. Major American Prose Writers (3)—Prerequisites, Eng. 2, 3.

Intensive study of the major non-fiction prose writers of nineteenth-century United States. Summer. (Warfel.)

For Graduates

Eng. 200. Seminar in Special Studies (1-3)—Credit proportioned to the importance of the problem assigned.

Work under personal guidance in some problem of especial interest to the graduate student, but not connected with the thesis. Summer, Fall, Spring. (Staff.)

Eng. 201. Research (2-4)—Credit proportioned to the amount of work done and results accomplished.

Original research and the preparation of dissertations for the doctor's degree. Summer, Fall, Spring. (Staff.)

Eng. 202. Middle English Language (2-3)—Prerequisites, Eng. 102, 103.

A study of readings of the Middle English period, with reference to etymology and syntax. Spring. (Harman.)

Eng. 203. Gothic (2)—Prerequisite, Eng. 102.

A study of forms and syntax, with readings from the *Ulfilas Bible*. Correlation of the Gothic speech sounds with those of the Old English. (Not offered 1942-43.) (Harman.)

Eng. 204.—Medieval Romance in England (4).

Lectures and readings in the cyclical and non-cyclical in Medieval England, and their sources, including translations from the Old French. Fall. (Hale.)

Eng. 205. Seminar in Sixteenth Century Literature (2-3).

Studies and problems in sixteenth-century literature other than Shakespeare. (Not offered 1942-43.) (Zeeveld.)

Eng. 206. Seminar in Elizabethan Drama (4).

Lectures and readings in the drama (not including Shakespeare) from about 1550 to the closing of the theaters in 1642. Fall, Spring. (McManaway.)

Eng. 207. Seminar in Shakespeare (2-3)—Prerequisites, Eng. 11 and 12, or equivalent.

Studies and problems in Shakespeare. Fall. (Zeeveld.)

Eng. 208. Seminar in Eighteenth Century Literature (2-3).

Intensive study of one man's work or of one important movement of the century. Spring. (Fitzhugh.)

Eng. 209. Seminar in American Literature (2-3)

Critical and biographical problems in nineteenth century American Literature. The subject for 1942-1943 will be the writings of Emerson and Whitman. Spring. (Warfel.)

Eng. 210. Seminar in the Romantic Period (2-3)—One discussion period of two hours. Prerequisites, Eng. 113, 114, or equivalent satisfactory to the instructor. Summer. (Hale.)

Eng. 211. Seminar in the Victorian Period (2-3)—Prerequisites, Eng. 116, 117, or the permission of the instructor.

Special studies of problems or persons in the Victorian Age. The subject matter of the course will vary with the interests of the class. Summer. (Cooley.)

Eng. 212. Old English Poetry (2-3)—Prerequisite, Eng. 102, or equivalent.

A study of Old English poetic masterpieces other than *Beowulf*. Spring. (Ball.)

Eng. 213. Bibliography (1).

A study of methods of research and standard bibliographical works. Required of all candidates for advanced degrees who register after the Fall of 1942. Fall. (Smith.)

ENTOMOLOGY

PROFESSOR CORY; LECTURERS SNODGRASS, YEAGER; ASSISTANT PROFESSORS KNIGHT, DITMAN, ABRAMS; DR. LANGFORD; MR. MCCONNELL, MR. PROVENZA.

Ent. 1. Introductory Entomology (3)—Two lectures; one laboratory. Prerequisite, 1 year of college biology.

The relationships of insects to man; the general principles of insect structure and classification; the adaptations and behavior of insects; the elementary aspects of economic entomology. Laboratory fee, \$3.00. Summer, Fall, Spring.

Ent. 2. Insect Morphology (3)—Two laboratory periods; occasional lectures. Prerequisite, Ent. 1.

A study of the structure of representative insects with special reference to those phases needed for work in insect taxonomy and biology. Laboratory fee, \$2.00. Fall, Summer.

Ent. 3. Apiculture (3)—Two lectures; one laboratory. Prerequisite, Ent. 1.

A study of the life-habits, yearly cycle, behavior and activities of the honeybee. The value of the bee in the pollination of economic plants and in the production of honey and beeswax. Designed for the student of agriculture, horticulture or biology. Summer, Spring.

Ent. 4. **Advanced Apiculture (3)**—Two lectures; one laboratory. Prerequisite, Ent. 3.

The theory and practice of apiary management. Designed for the student who wishes to keep bees or requires a practical knowledge of bee management. Fall, Summer.

For Advanced Undergraduates

Ent. 50. **Insect Taxonomy (3)**—Two laboratory periods; occasional lectures. Prerequisite, Ent. 2.

The fundamentals of classification and nomenclature; intensive work on the classification of the orders of insects and a study of the important families within the major orders of Exopterygota. The preparation of a collection of Maryland insects. Laboratory fee, \$2.00. Summer, Spring. (Knight.)

Ent. 51. **Advanced Taxonomy (3)**—Two laboratory periods; occasional lectures. Prerequisite, Ent. 50.

A continuation of Ent. 50. Classification of the important families in the major orders of the Endopterygota. The preparation of a collection of Maryland insects. Laboratory fee, \$2.00. Fall, Summer. (Knight.)

For Advanced Undergraduates and Graduates

Ent. 101. **Economic Entomology (4)**—Prerequisite, consent of department.

An intensive study of the theory and problems of applied entomology, including life history, ecology, behavior, distribution, parasitism, and control. Fall. (Cory.)

Ent. 103. **Insect Pests (3)**—Two lectures; one laboratory period. Prerequisite, Ent. 1.

A study of the principal insect pests of one or more groups of economic plants, based primarily upon food preferences and habitat. Designed principally for students of agriculture and entomology, who may choose one or more of the following groups of pests for special study: pests of (1) fruit, (2) truck crops, (3) flowers, in the open or under glass, (4) ornamentals and shade trees, (5) forest trees, (6) field crops, (7) stored products, (8) livestock, and (9) the household. Laboratory fee, \$2.00. Summer. (Knight.)

Ent. 104. **Insect Pests (3)**—Two lectures; one laboratory period. Prerequisite, Ent. 1.

A continuation of Ent. 103 for those students who wish to take two semesters. Both semesters required of majors in entomology. Laboratory fee, \$2.00. Spring. (Cory.)

Ent. 105. **Medical Entomology (2)**—Prerequisite, Ent. 1 and consent of the department.

The relation of the Arthropoda to disease of man, both directly and as vectors of pathogenic organisms. The fundamentals of parasitology and sanitation as they are related to entomology. The control of pests of man. Spring. (Knight.)

Ent. 107. **Insecticides (3)**—Prerequisite, Ent. 1 and elementary organic chemistry.

The development and use of contact and stomach poisons, fumigants and other important chemicals, with reference to their chemistry, toxic action, compatibility, and host injury. Recent research emphasized. Spring. (Ditman.)

Ent. 109. **Insect Physiology (2)**—Two lectures; occasional demonstrations. Prerequisite, consent of the department.

The functioning of the insect body with particular reference to blood, circulation, digestion, absorption, excretion, respiration, reflex action and the nervous system, and metabolism. Spring. (Yeager.)

Ent. 110. **Special Problems**—Credit and prerequisite to be determined by the department.

The intensive investigation of some entomological problem, preferably of the student's choice. A report of results constitutes one of the requirements for the completion of the curriculum in entomology. Students may satisfy the requirement in this course in one semester if their schedule allows sufficient time. Summer, Fall, Spring. (Staff.)

Ent. 112. **Seminar (1)**—Prerequisite, senior standing.

Presentation of original work, review and abstracts of literature, by major students in the department. Fall, Spring. (Cory, Knight.)

For Graduates

Ent. 201. **Advanced Entomology**—Credit and prerequisite to be determined by the department.

Studies of minor problems in morphology, taxonomy and applied entomology, with particular reference to the preparation of the student for individual research. Summer, Fall, Spring. (Cory.)

Ent. 202. **Research**.

Advanced students with adequate preparation may, with approval of the head of the department, undertake supervised research in entomology. The student may be allowed to work on Experiment Station or State Horticultural Department projects, and may form a part of the final report published in bulletin form. A dissertation suitable for publication must be submitted at conclusion of the studies as part of the requirement for an advanced degree. Summer, Fall, Spring. (Cory.)

Ent. 203. Insect Morphology (2-4)—Two lectures; additional laboratory work and credit by special arrangement with department.

Insect anatomy with special reference to function. Given in preparation for advanced work in physiology or research in morphology. Fall.
(Snodgrass.)

Ent. 205. Insect Ecology (2)—One lecture; one laboratory. Prerequisite, consent of the department.

A study of the fundamental factors involved in the relationship of insects to their environment. Emphasis is placed on the insect as a dynamic organism adjusted to its surroundings. Spring.
(Langford.)

Ent. 206. Coccidology (2)—Two laboratory periods. Prerequisite, consent of the department.

A study of the morphology, taxonomy, and biology of the higher groups of the scale insects. The technic of preparation and microscopy. Laboratory fee, \$2.00. Spring.
(McConnell.)

FARM FORESTRY

For. 1. Introduction to Forestry (3)—Two lectures; one laboratory. Prerequisites, Bot. 1, 2.

A general survey of the field of forestry. Principles of forestry applied to the establishment, care, and protection of stands of timber. Identification and distribution of commercially important trees. (Not offered 1942-43.)
For Advanced Undergraduates

For. 50. Farm Forestry (2)—Prerequisite, Bot. 1.

A study of the principles and practices involved in managing woodlands on the farm. The course covers briefly the identification of trees; forest protection; management, measurement, and utilization of forest crops; nursery practice; and tree planting. (Not offered 1942-43.)

GEOLOGY

PROFESSOR HESS; ASSISTANT PROFESSOR MADIGAN.

Geol. 1. Geology (3)—Two lectures; one laboratory. Prerequisite, Chem. 1 f s.

A study dealing primarily with the principles of dynamical and structural geology. Designed to give a general survey of the rocks and minerals composing the earth; the movement within it, and its surface features and the agents that form them. Fall.

Geol. 2. Engineering Geology (2)—Required of sophomores in civil engineering.

The fundamentals of geology with engineering applications. Fall.

HISTORY

PROFESSORS GEWEHR, BAKER-CROTHERS, STRAKHOVSKY; ASSOCIATE PROFESSOR HIGHBY; ASSISTANT PROFESSORS THATCHER, SILVER, PRANGE; DR. DOZER,*
DR. HOLM.

H. 1 f s. A Survey of Western Civilization (6)—For freshmen and sophomores; open to upper classmen by special arrangement. It may be entered either semester.

A general course covering the broad movements of European history which contributed to the formation of modern institutions. The aim of the course is to make the student cognizant of the present trends in this changing world. Recommended for all students who expect to major in history and for those who expect to elect only one history course. Summer, Fall; Fall, Spring.

H. 3 f s. History of England and Great Britain (6)—For freshmen and sophomores; open to upper classmen by special arrangement.

A survey of the evolution of England and Great Britain from the earliest times to the present; especially valuable for pre-law students and majors in English. Summer, Fall; Fall, Spring.

H. 5, 6. American History (3, 3)—Primarily for sophomores; freshmen may enter only if their curriculum specifically requires it.

A survey of American history from colonial times to the present. First semester, through the Civil War; second semester, since the Civil War. Summer, Fall; Fall, Spring.

For Advanced Undergraduates and Graduates

H. 101. American Colonial History (3)—Three lectures. Prerequisites, H. 5, 6, or equivalent.

The settlement and development of colonial America to mid-eighteenth century. Fall.
(Baker-Crothers.)

H. 102. The American Revolution (3)—Three lectures. Prerequisites H. 5, 6, or equivalent.

A consideration of the background and course of the American Revolution through the formation of the constitution. Summer, Spring.
(Baker-Crothers.)

H. 107. The United States from the Civil War to 1900 (3)—Prerequisite, H. 6 or equivalent.

Selected topics intended to provide an historical basis for an understanding of the problems of the present century. (Not offered 1942-43.)
(Thatcher.)

*Absent on leave.

H. 108. The United States in the Twentieth Century (3)—Prerequisite, H. 6 or equivalent.

A study of the outstanding economic and political problems and of the cultural changes of the last fifty years, with the purpose of understanding our own day. Summer. (Gewehr.)

H. 111, 112. Social and Economic History of the United States to 1860 (3, 3)—Prerequisites, H. 5, 6, or equivalent.

First semester, an advanced course giving a synthesis of American life in the colonial period.

Second semester, the period from 1790 to 1860. Fall, Spring.

H. 115 f s. Constitutional History of the United States (6)—Prerequisites, H. 5, 6. (Baker-Crothers.)

A study of the historical forces resulting in the formation of the Constitution, and of the development of American constitutionalism in theory and practice thereafter. Fall, Spring. (Thatcher.)

H. 119, 120. Diplomatic History of the United States (2, 2)—Prerequisites, H. 5, 6, or equivalent.

An historical study of the diplomatic negotiations and foreign relations of the United States from the American Revolution to the present. First semester, from the Revolution to the Civil War; second semester, from the Civil War to the present. Summer, Fall. (Thatcher.)

H. 121, 122. History of the American Frontier (3, 3)—Prerequisites, H. 5, 6, or equivalent.

A study of the influence of the westward movement in shaping American institutional development. First semester, the trans-Allegheny West; second semester, the trans-Mississippi West. Fall, Spring. (Gewehr.)

H. 123. The Old South (3)—Prerequisites, H. 5, 6, or equivalent.

A study of the institutional and cultural life of the ante-bellum South with particular reference to the development of sectionalism and the background of the Civil War. (Not offered 1942-43.) (Gewehr.)

H. 124. The Civil War and Reconstruction (3)—Prerequisites, H. 5, 6, or equivalent.

Military aspects of the Civil War; internal problems of the Confederacy; political, economic, and social problems of reconstruction; factors and influences shaping the present South. (Not offered 1942-43.) (Gewehr.)

H. 125, 126. History of Maryland (2, 2)—Prerequisites, H. 5, 6, or equivalent.

First semester, a survey of the political, social, and economic history of colonial Maryland.

Second semester, Maryland's historical development and role as a state in the American Union. Fall, Spring. (Dozer.)

H. 127, 128. Latin American History (2, 2)—Prerequisites, 6 hours of fundamental courses.

First semester, a survey of colonial history of Latin America through the wars of independence.

Second semester, the history of the Latin American states from the wars of independence to the present, with special attention to Argentina, Brazil, Chile, and Mexico, and their relations to the United States. (Not offered 1942-43.) (Dozer.)

H. 131. History of the Ancient Orient and Greece (3).

A brief survey of the ancient empires of Egypt and the Near East, followed by a fuller treatment of Greek history and culture. Summer, Spring. (Highby.)

H. 132. History of Rome (3).

A study of Roman civilization from the earliest beginnings through the republican period and down to the third century of the empire. Fall. (Highby.)

H. 133, 134. Medieval Civilization (3, 3)—Prerequisite, H. 1 f s, or the permission of the instructor.

A study of the medieval period, with emphasis on its life, culture, and institutions. First semester, from the fall of Rome to about the end of the eleventh century; second semester, the twelfth, thirteenth, and later centuries. (Not offered 1942-43.) (Holm.)

H. 135, 136. The Foundations of Modern Culture (3, 3)—Prerequisite, H. 1 f s, or the permission of the instructor.

First semester, the Renaissance and the Reformation; second semester, the seventeenth and eighteenth centuries. The course will stress the cultural achievements in science, the arts, and literature during the different periods from 1250 to 1789, set in each case against the social, economic, and political background. While of primary interest to history majors, the course also aims to be useful to students in the other humanities. Fall, Spring. (Holm.)

H. 137, 138. Revolutionary and Napoleonic Europe (2, 2)—Prerequisite, H. 1 f s, or equivalent.

First semester, Revolutionary France and its influence on Europe.

Second semester, the Napoleonic regime and the balance of power. Fall, Spring. (Silver.)

H. 139, 140. Europe in the Nineteenth Century, 1815-1914 (3, 3)—Prerequisite, H. 1 f s, or equivalent.

A study of the political, economic, social, and cultural development of Europe from the Congress of Vienna to the World War. Summer, Spring. (Strakhovsky.)

H. 143, 144. Europe since 1914 (3, 3)—Prerequisite, H. 1 f s, or equivalent.

A study of the political, economic, social, and cultural development of Europe with special emphasis on the factors involved in the two World Wars. Summer, Fall. (Strakhovsky.)

H. 151, 152. Diplomatic History of Europe since 1871 (3, 3)—Prerequisite, H. 1 f s, or equivalent.

A study of European diplomacy, imperialism, and power politics since the Franco-Prussian War. (Not offered 1942-43.) (Strakhovsky.)

H. 155, 156. History of Central Europe (3, 3)—Prerequisite, H. 1 f s, or equivalent.

The history of Central Europe from 1600 to the World War, with special emphasis on Germany and Austria. (Not offered 1942-43.) (Prange.)

H. 157, 158. Central Europe in the World Today (2, 2)—Prerequisite, H. 1 f s, or equivalent.

An analysis of the origin, the philosophical bases, and the influence of National Socialism and Hitler. Special emphasis will be placed upon the problems involved in the present world conflict. (Not offered 1942-43.) (Prange.)

H. 161, 162. History of the Near East (2, 2)—Prerequisite, H. 1 f s, or equivalent.

First semester, a study of the Balkans and of Turkey to the Congress of Berlin in 1878. Second semester, a study of the Balkan states and Turkey from 1878 to the present. (Not offered 1942-43.) (Strakhovsky.)

H. 163, 164. History of Russia (2, 2)—Prerequisite, H. 1 f s, or equivalent.

A history of Russia from the earliest times to the present day. (Not offered 1942-43.) (Strakhovsky.)

H. 171, 172. History of the British Empire (3, 3)—Prerequisite, H. 1 f s, or equivalent.

First semester, the rise of the Old Mercantilistic Empire in the East and West, and its decline in the period of the American Revolution.

Second semester, the evolution of Greater Britain from Empire to Commonwealth of Nations. Summer, H. 172. (Silver.)

H. 181. The Far East (3).

A survey of institutional, cultural, and political aspects of the history of China and Japan, and a consideration of present-day problems of the Pacific area. Summer. (Gewehr.)

For Graduates

H. 200. Research (2-4)—Credit proportioned to the amount of work. Summer, Fall, Spring. (Staff.)

H. 201. Seminar in American History (2)—Conferences and reports in related topics. Summer, Fall, Spring. (Staff.)

H. 213. Historical Method and Bibliography: American History (2). A required course for all graduate students majoring in American history. (Thatcher.)

H. 214. Historical Method and Bibliography: European History (2). A required course for all graduate students majoring in European history. Summer, Fall, Spring. (Strakhovsky.)

H. 225. Seminar in European History (2)—Round table discussions and reports on specified topics. Summer, Fall, Spring. (Staff.)

HOME ECONOMICS

Home Economics Lectures

H. E. 1 f s. Home Economics Lectures (2)—Required of Home Economics freshmen.

Lectures, demonstrations, group and individual discussions on grooming and clothing budget for the college girl; personal adjustments; good study habits; social usage. Summer, Fall; Fall, Spring.

Textiles and Clothing

Textiles

H. E. 15. Textiles (3)—Two recitations; one laboratory.

History of textile fibers, their source, production, manufacture, characteristics, identification, and use; standardization and labeling of textiles and clothing; collection and analysis of new materials, regulations governing standardization. Laboratory fee, \$2.00. Summer, Fall, Spring.

For Advanced Undergraduates and Graduates

H. E. 170. Consumer Problems in Textiles (3)—Two recitations; one laboratory. Prerequisite, H. E. 15 or consent of the instructor.

Laundrying and dry cleaning of clothing and household furnishings; storage of clothing and furs; comparison and evaluation of fabrics. Laboratory fee, \$3.00. Summer, Fall, Spring.

H. E. 171. Advanced Textiles (3)—One recitation; two laboratories. Prerequisites, H. E. 15, Chem. 12 A f s, 12 B f s.

A study of recent research and commercial development in textiles; textile microscopy; physical and chemical analysis of textile fabrics. Laboratory fee, \$3.00. Fall, Spring.

H. E. 172. Problems in Textiles (3)—One recitation; two laboratories. Prerequisite, H. E. 171.

Experimental work in textiles. Laboratory fee, \$3.00. Fall, Spring.

Clothing

H. E. 11 A. Clothing (3)—Three laboratories. Prerequisite H. E. 15.

Wardrobe planning, interpretation and use of commercial patterns; construction of garments involving difficult techniques and ability to handle fabrics. Laboratory fee, \$2.50. Summer, Fall; Fall, Spring.

H. E. 11 B. Clothing (3)—Three laboratories. For students with no experience in clothing construction. Prerequisite, H. E. 15, or consent of instructor.

Wardrobe planning; interpretation and use of commercial patterns; construction of simple garments. Laboratory fee, \$2.50. Summer, Fall; Fall, Spring.

For Advanced Undergraduates and Graduates

H. E. 111. Advanced Clothing (3)—Three laboratories. Prerequisites H. E. 11, H. E. 24, or equivalent.

Draping of garments in cloth on a dress form stressing style, design, and suitability to the individual. Laboratory fee, \$3.00. Summer, Fall, Spring.

H. E. 112. Problems in Clothing (3)—Three laboratories. Prerequisite H. E. 111 or equivalent.

Clothing renovation; children's garments; individual clothing problems. Emphasis is placed upon design, appropriate selection of materials and the initiative and accuracy expressed in the performance of the projects. Laboratory fee, \$2.50. Spring.

H. E. 113. Pattern Design (2)—Two laboratories. Prerequisites H. E. 11 A or 11 B.

Comparative study of commercial patterns; development and use of a foundation pattern; creation of new designs in paper and cloth; application of one design in making a garment. Laboratory fee, \$2.50. Fall.

H. E. 114. Tailoring (2)—Two laboratories. Prerequisite H. E. 11 A or 11 B.

Construction of tailored garments requiring professional skill. Laboratory fee, \$2.50. Spring.

Practical Art

H. E. 21. Design (3)—Three two-hour laboratories.

Art expression through the use of materials, such as opaque water color, wet clay, colored chalk, and lithograph crayon, which are conducive to free techniques. Elementary lettering, action figures, abstract design, and general composition study. Consideration of art as applied to daily living. Laboratory fee, \$2.00. Summer, Fall, Spring.

H. E. 24. Costume Design (3)—Three laboratories. Prerequisite H. E. 21, or equivalent.

Clothing selection with relation to personality. Adaptation of changing fashions to the individual. Designing of costumes in mediums such as Conté and lithograph crayon, transparent and opaque water color, soft pencil, colored crayon, India ink, and three-dimensional materials. Survey of the fashion industry. Laboratory fee, \$2.00. Summer, Fall, Spring.

H. E. 25. Simple Crafts (2)—Two two-hour laboratories.

Creative art expressed in clay modeling, plaster carving, metal working, paper maché modeling, wood burning, etc. Emphasis is laid upon inexpensive materials and tools and simple techniques, which can be pursued in the home. Laboratory fee, \$2.00. Summer.

For Advanced Undergraduates and Graduates

H. E. 120. Advertising Layout and Store Coordination (2)—Two two-hour laboratories. Prerequisite, H. E. 21, or equivalent.

Lettering, elementary figure sketching, and freehand perspective drawing applied to graphic advertising in the field of each student's major interest. Discussion of department and specialty store organization; lectures by retail executives from Baltimore and Washington. Laboratory fee, \$2.00. Fall.

H. E. 121, 122. Interior Design (3, 3)—First semester, two lectures, one two-hour laboratory; second semester, three laboratories. Prerequisite, H. E. 21, or equivalent; H. E. 121 is prerequisite to H. E. 122.

Analysis of interiors as backgrounds for various personalities. Study of good and poor interiors, traditional styles in furnishings, and new developments in contemporary housing. Trips to historic homes, a furniture factory, and retail house furnishing establishments. In second semester, floor plans and wall elevations drawn to scale and rendered in color. Laboratory fee, \$2.00 each semester. Summer, Fall, Spring.

H. E. 123, 124. Advanced Interior Design (2, 2)—Two two-hour laboratories. Prerequisite, H. E. 21, H. E. 121, 122, or equivalent.

Designing of rooms, including interior architecture, furniture, fabrics, accessories; scale drawing and color rendering in plan, elevation and perspective. A study of furniture manufacture and merchandising. Planning of exhibition rooms or houses when possible. Fee, \$2.00 each semester. H. E. 123, Fall; H. E. 124, Spring, Summer.

H. E. 125. Merchandise Display (2)—Two two-hour laboratories. Prerequisite, H. E. 21, or equivalent.

Practice in effective display of merchandise through the use of five display windows built into the home economics building. Cooperation with retail establishments. Laboratory fee, \$2.00. Summer, Fall, Spring.

H. E. 126. Store Experience (3)—160 clock hours, or 20 eight-hour days. Prerequisite, senior standing in Practical Art curriculum.

Selling, buying, advertising, or executive work, done under supervision in a specified department store. Laboratory fee, \$2.00. Fall.

H. E. 127, 128. Advanced Costume Design (2, 2)—Two two-hour laboratories. Prerequisite, H. E. 21, H. E. 24, or equivalent.

Fashion illustration and design. Special emphasis is placed on originality and adaptability of design to fabrics and personalities. One semester of original draping on the dress form. Laboratory fee, \$2.00 each semester. H. E. 127, Fall; H. E. 128, Summer, Spring.

H. E. 129. Radio in Retailing (3)—Prerequisites, Speech 1 f s, Eng. 1 f s, Jour. 1 f s, Mkt. 119, H. E. 125.

Writing and production of promotional programs for the merchandising of wearing apparel and house furnishings. Collaboration with speech department staff and representatives of Washington and Baltimore broadcasting stations and retail stores. For majors in Practical Art. Laboratory fee, \$2.00. Summer, Spring.

H. E. 130. Advanced Merchandise Display (2)—Two two-hour laboratories. Prerequisites, H. E. 21, H. E. 125.

Advanced problems in the display of merchandise. Laboratory fee, \$2.00. Summer, Fall, Spring.

H. E. 160, 161. Individual Problems in Design (3, 3)—Prerequisites, H. E. 21, 24, 121, 122; H. E. 123, 124, or 127, 128, must precede or parallel this course.

Advanced design problems in the field of the student's major interest. Laboratory fee, \$2.00 each semester. Summer, Fall, Spring.

Home Economics Extension

H. E. 151. Methods in Home Economics Extension (3)—Given under the direction of Venia M. Kellar and specialists. Prerequisite, senior standing. Spring.

Home and Institution Management

H. E. 141, 142. Management of the Home (3, 3)—Two lectures; one laboratory.

The family and human relations; household organization and management; budgeting of time and money. Housing as a social problem; federal and civic housing projects; housing standards for the family; building and financing a home. Selection and care of household equipment and furnishings. Fall, Spring; Spring, Summer.

H. E. 143. Practice in Management of the Home (3)—Prerequisites, H. E. 141, 142.

Experience in operating and managing a household composed of a member of the faculty and a small group of students for approximately one-third of a semester. Laboratory fee, \$4.00. Summer, Fall, Spring.

H. E. 144 f s. Institution Management (6)—Prerequisites, H. E. 31 f s, 141, 142, 131. The last three may be taken concurrently.

The organization and management of food service in hospitals, clubs, schools, cafeterias, and restaurants; management of room service in dormitories; organization of institution laundries. Institutional accounting and purchasing of supplies, furnishings and equipment. Summer, Fall; Fall, Spring.

H. E. 145. Practice in Institution Management (3)—Prerequisite, H. E. 144 f s.

Practice work in one of the following: the University dining hall, a tea room, hospital, cafeteria, or hotel. This must be done under direction for not less than six weeks full time.

H. E. 146. Advanced Institution Management (3)—Two recitations weekly and individual conferences with the instructor. Prerequisite, H. E. 144 f s.

Special problems in institution management. Spring.

H. E. 147. Institution Cookery (3)—One recitation; two laboratories. Prerequisites, H. E. 31 f s, 137, 131.

Application of principles of food preparation to large quantity cookery; study of standard technics; menu planning and costs; standardization of recipes; use of institutional equipment; practice in cafeteria counter service. Laboratory fee, \$7.00. Fall, Spring.

H. E. 148. The School Lunch (2)—Two laboratories. Prerequisites, H. E. 31 f s, H. E. 131.

The educational and nutritional aspects of the school lunch and its administration; equipment, finances and accounting; planning and preparation of menus. Summer, Spring.

Foods and Nutrition

H. E. 30 f s. Introductory Foods Study (6)—One recitation; two laboratories.

Elementary food selection and preparation for students not majoring in home economics. Laboratory fee, \$7.00 per semester. Fall, Spring; Spring, Summer.

H. E. 31 f s. Foods (6)—One recitation; two laboratories. Prerequisite, Chem. 1 f s.

Composition, selection, and preparation of food, with a study of the scientific principles involved; analysis of recipes and study of standard products. Laboratory fee, \$7.00 per semester. Fall, Spring; Spring, Summer.

H. E. 32. Elements of Nutrition (3).

A study of normal nutritional needs; the relation of food to health; planning of adequate dietaries for adults. Fall, Summer.

For Advanced Undergraduates and Graduates

H. E. 131. Nutrition (3)—Prerequisites, H. E. 31 f s, Chem. 12 A f s.

A scientific study of principles of human nutrition. Fall, Spring, Summer.

H. E. 132. Dietetics (3)—Two recitations; one laboratory. Prerequisite, H. E. 131.

A study of food selection for health; planning and calculating dietaries for adults and children. Laboratory fee, \$2.00. Fall, Spring.

H. E. 133. Demonstrations (2)—Two laboratories. Prerequisites, H. E. 11, 31 f s, 71.

Practice in demonstrations. Laboratory fee, \$7.00. Summer, Fall, Spring.

H. E. 134. Advanced Foods (3)—One recitation; two laboratories. Prerequisite, H. E. 31 f s. Laboratory fee, \$7.00.

Advanced study of manipulation of food materials. Fall, Spring.

H. E. 135. Experimental Foods (4)—Two recitations; two laboratories. Prerequisites, H. E. 31 f s, 137, Chem. 12 A f s.

A study of food preparation processes from experimental viewpoint. Practice in technics. Laboratory fee, \$7.00. Summer, Fall.

H. E. 136. Child Nutrition (3)—Two recitations; one laboratory. Prerequisite, H. E. 131.

Principles of human nutrition applied to growth and development of children; experience with children in the nursery school, in children's hospitals and clinics. Fall, Spring.

H. E. 137. Food Buying and Meal Service (3)—One recitation; two laboratories. Prerequisite, H. E. 31 f s.

Study of problems in food buying; planning and serving meals for the family group in relation to nutritional needs and cost. Includes simple entertaining. Laboratory fee, \$7.00. Summer, Fall, Spring.

H. E. 138. Diet in Disease (3)—One recitation; two laboratories. Prerequisite, H. E. 131.

Modification of the principles of human nutrition to meet dietary needs of certain diseases. Laboratory fee, \$3.00. Fall, Spring.

For Graduates

H. E. 201. Seminar in Nutrition (2).

Oral and written reports on current literature of nutrition. Spring.

H. E. 202. Research—Credit to be determined by amount and quality of work done.

With the approval of the head of the department, the student may pursue an original investigation in some phase of foods. The result may form the basis of a thesis for an advanced degree.

H. E. 203. Advanced Experimental Foods (3)—One recitation; two laboratories.

Individual experimental problems. Special emphasis on use of Maryland products. Laboratory fee, \$7.00. Spring.

H. E. 204. Readings in Nutrition (2).

Reports and discussions of outstanding nutritional research and investigations. Fall.

H. E. 205. Nutrition (3)—One recitation; laboratory by arrangement.

Feeding experiments are conducted on laboratory animals to show effects of diets of varying compositions. (Not offered 1942-43.)

HORTICULTURE

PROFESSORS MAHONEY, SCHRADER, THURSTON, WALLS; ASSOCIATE PROFESSORS HAUT, LINCOLN, SHOEMAKER; DR. HITZ, MR. BAILEY, MR. FOSSUM, MR. SHUTAK.

Hort. 1. General Horticulture (3)—Two lectures; one laboratory. Prerequisite, sophomore standing.

A foundation course planned to give the student a background of methods used in the commercial production of fruits and vegetables. The production problems of the commercial growers are presented to acquaint the student with a general outlook on the future of the industry in the state and in the country as a whole. The laboratory work consists of actual practice by the student on the various procedures used by successful producers of fruits and vegetables. Summer, Spring.

Hort. 2. General Horticulture (3)—Two lectures; one laboratory. Prerequisite, sophomore standing.

One-half of semester is devoted to a consideration of the landscape development of the suburban home and farmstead, so as to increase the usefulness, efficiency and attractiveness of such areas. Simple and practical information is given covering the proper arrangement of trees, shrubs, and flowers; the location and construction of walks and drives; planting

methods; lawn building and care; and such maintenance problems as pruning, plant feeding and insect and disease controls. Illustrated lectures, field work and plan making.

The second half of the semester will be devoted to a study of home floriculture, greenhouse practices, and plant propagation. The work will cover design and planting of annual and perennial borders, flower boxes, and pot culture in soil and nutrient solutions. Fall, Summer.

Hort. 3. Fruit Production (2-3)—One lecture; one or two laboratories.

A study of commercial varieties and the harvesting, grading, and storage principles and practices in tree fruit production. One laboratory is devoted to the actual operations involved in these orchard practices, and includes field trips to commercial packing and storage houses. The second laboratory is devoted to apple variety identification and judging. A fruit judging team is selected to compete in the Eastern States Intercollegiate Fruit Judging League, of which Maryland is a member. Fall.

Hort. 4. Fruit Production (2)—One lecture; one laboratory. Prerequisites, Bot. 1, Chem. 1 f s.

A continuation of Hort. 3 s, devoted to the practical application of the principles involved in tree fruit production. Establishment of the orchard, soils, sites, fertilizers, cultural practices, fruiting habits, pollination, and pruning receive consideration. The laboratory is especially designed to provide actual practice in the application of the various orchard operations. Summer, Spring.

Hort. 5. Vegetable Production (3)—Two lectures; one laboratory. Prerequisites, Chem. 1 f s, Bot. 1.

A study of the underlying principles of vegetable production. This course deals with proper soil types and maintenance of soil fertility, seedage, plant production and plant growing structures, methods in cultivation, harvesting and storage, the selection of proper types and varieties to suit various market requirements; and discussion of the more important diseases and insect pests and their control, incident to vegetable production for home use, as well as on a commercial scale.

Laboratory work will cover practical exercises in the above phases of vegetable growing. Working out of detailed plans of a farm garden, to insure an adequate food supply for the family will be required, as well as the maintenance of a demonstration garden. Spring, Summer.

Hort. 6. Greenhouse Construction and Management (3)—Two lectures; one laboratory.

A detailed consideration of various types of houses and their management; location with respect to sites and markets; arrangement, construction, and costs of building and operation; practical methods of handling greenhouses under various conditions. Summer.

Hort. 7. Greenhouse Management (3-4)—Two or three lectures; one laboratory. No prerequisite.

A continuation of Hort. 6. Fall.

Hort. 8. Small Fruits (2-3)—Two lectures; one laboratory. Lectures may be taken without laboratory.

A study of the principles and practices involved in the production of the small fruits including grapes, strawberries, raspberries, blueberries, blackberries, cranberries, etc. Plant characteristics, varieties, propagation, site and soils, planting, soil management, fruiting habits, pruning, fertilizers, harvesting, and marketing receive consideration. Spring.

Hort. 9. Garden Flowers (3)—Two lectures; one laboratory.

Plants for garden use; the various species of annuals, herbaceous perennials, bulbs, bedding plants, and roses and their cultural requirements. Summer, Spring.

Hort. 10 f s. Commercial Floriculture (6-7)—Two lectures; one or two laboratories. Prerequisites, Hort. 6, 7.

Methods of handling florists' bench crops and potted plants, the marketing of cut flowers, the retail business, and floral design and decoration. Trips to important commercial centers and flower shows will be made. Spring, Summer.

Hort. 11. Landscape Gardening (2).

The theory and general principles of landscape gardening and their application to private and public areas. Special consideration is given to the improvement and beautification of the home grounds, farmsteads, and small suburban properties. Adapted to students not intending to specialize in landscape, but who wish some theoretical and practical knowledge of the subject. Summer.

Hort. 12. Landscape Design (3)—One lecture; two laboratories. Prerequisite, Hort. 11.

A consideration of the principles of general landscape design supplemented by direct application in the drafting room. Attention is given to the reading of plans, practice in lettering, and the technique of landscape drafting. Practice in obtaining field data by various expedient methods is given and field trips to observe local examples, illustrating the principles of landscape design, will be taken. Simple landscape sketch plans will be prepared applying the principles of walk and drive locations, the arrangement of trees, shrubs and flowers and other items incident to the landscape development of small home-grounds. Summer, Fall.

Hort. 13. Landscape Design (3)—Three laboratories. Prerequisite, Hort. 12.

A continuation of Hort. 12 f with more advanced application. The solution of original landscape problems in the development of home-grounds

and small country places where topography, natural features, and the outline of the property provide factors influencing the development. Consideration will be given to the principles of planting design and simple planting plans will be prepared. The design of flower gardens and architectural details used in landscape compositions will be part of the work, and simple grading plans and constructive drawings will be made. Field trips to inspect and study actual landscape developments will be made.

Note: The courses offered in landscape design are not sufficiently adequate in scope to prepare a student for the professional practice of landscape architecture, but are designed to be helpful to those who may find some training in landscape design desirable, incident to following other related occupations. Included would be nurserymen, florists, landscape gardeners, park, estate, and cemetery superintendents; landscape contractors and students of home economics. Students found to have particular aptitude for landscape design and who wish to follow the work professionally may complete the course elsewhere. Spring, Summer.

Hort. 14. Civic Art (2).

Principles of city planning and their application to village and rural improvements, including problems in design of civic centers, parks, school grounds, and other public and semi-public areas. Spring, Summer.

For Advanced Undergraduates

Hort. 55. Methods of Commercial Processing of Horticultural Crops (3) —Two lectures; one laboratory.

The fundamentals of canning and freezing horticultural crops; maturity studies; harvesting methods, including threshing of peas and lima beans; grades and grading of raw products; preparation for processing or freezing, such as washing, sizing, and blanching; methods of processing and freezing and storage of frosted foods. Open only to juniors and seniors majoring in agriculture, home economics, or bacteriology. Fall.

Hort. 56. Landscape Ornamentals and Floriculture (2)—One lecture; one laboratory.

A course dealing with the basic principles in the use of trees, shrubs, broadleaved evergreens, evergreens, annual and perennial flowering plants in ornamental plantings. Practical methods of culture, care, and propagation specifically pertaining to home properties and problems will be emphasized. Included will be demonstrations and practice on the arrangement and design of cut flowers in the home. Each student will be required to develop a design and planting plan for their own property. Open to all Juniors and Seniors in all colleges of the University. Summer.

For Advanced Undergraduates and Graduates

Hort. 101, 102. Technology of Horticultural Plants (Fruits) (2, 2)— Prerequisite, Plt. Phys. 101.

A critical analysis is made of research work in horticulture and allied work in plant physiology, chemistry, and botany, the results of which are interpreted with respect to their application in commercial production. Fundamental principles involved in growth, fruiting, storage, and quality of horticultural plants and products are stressed. Fall, Spring. (Haut.)

Hort. 103, 104. Technology of Horticultural Plants. (Vegetables) (2, 2) —Prerequisite, Plt. Phys. 101.

These courses are described under Hort. 101, 102. Fall, Spring.

(Mahoney.)

Hort. 105. Technology of Horticultural Plants (Ornamentals) (2)— Prerequisite, Plt. Phys. 101.

A study of the physiological plant processes as related to the growth, flowering, storage, etc., of floricultural and ornamental plants. A critical analysis and interpretation of the result of research studies dealing with water relations, temperature relations, photoperiodism, rest period, soils, fertilizers, and mineral deficiencies on ornamental crops. The applications pertaining to commercial production receive special consideration. Fall. (Haut.)

Hort. 106. World Fruits and Nuts (2).

A study of the tropical and subtropical fruits and nuts of economic importance. The orange, lemon, grapefruit, pineapple, banana, date, fig, olive, avocado, papaya, mango, walnut, pecan, almond, filbert, tung nut, Brazil nut, cashew, and cocoanut receive consideration. Special emphasis is placed upon the botanical relationships, composition, varieties, climatic and cultural requirements, methods and problems of production, and the development and present commercial status of those grown in the United States and its possessions. Spring. (Haut.)

Hort. 107 f s. Plant Materials (5)—One lecture; one or two laboratories.

A field or laboratory study of trees, shrubs, and vines used in ornamental plantings. Spring, Summer. (Thurston.)

Hort. 108. Canning Crops Technology (3)—Two lectures; one laboratory. Prerequisites, Hort. 16, Plt. Phys. 101.

A course dealing with the more technical physico-chemical methods used in the study of the fundamentals or factors influencing the quality of raw products; physiological processes prior to and after blanching; and grade of processed product. In addition, studies will be made of new types of equipment and recent research on methods of processing. Visits to canning plants and commercial laboratories will be required. Fall.

(Mahoney, Walls.)

Hort. 109. Systematic Pomology (3)—Two lectures; one laboratory.

A study of the origin, history, taxonomic relationships, description, pomological classification and identification of tree and small fruits. Fall. (Haut.)

Hort. 110. Systematic Olericulture (3)—Two lectures; one laboratory.

A study of the classification and nomenclature of vegetable crops, and the description and identification of varieties. The adaptation of varieties to different environmental conditions and their special uses in vegetable production. Summer. (Walls.)

Hort. 111 f s. Seminar (2).

Designed to give training in the interpretation, condensation, and oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of horticulture. Fall, Summer. (Staff.)

Hort. 112. Special Problems (2-4)—Credit according to work done.

An advanced student in any of the divisions of horticulture may select a special problem for study. This may be either the summarizing of all the available knowledge on a particular problem or the investigation of some new problem. Where original investigation is carried on, the student should in most cases start the work during the junior year. Summer, Fall, Spring. (Staff.)

For Graduates

Hort. 201, 202. Experimental Pomology (2, 2)—Prerequisite, Plt. Phys. 101.

A systematic study of the sources of knowledge and opinion as to practices in pomology; methods and difficulties in experimental work in pomology and results of experiments that have been or are being conducted in all experiment stations in this and other countries. Fall, Spring. (Schrader.)

Hort. 203, 204. Experimental Olericulture (2, 2)—Prerequisite, Plt. Phys. 101.

A critical study and interpretation is made of certain experimental work done on soils, fertilizers, water relations, light and temperature relations, rest period and dormancy, and anatomical and morphological studies which may be applied to the field of vegetable crops. Methods and techniques used in research are discussed. Fall, Spring. (Mahoney.)

Hort. 205. Experimental Pomology (2).

A continuation of Hort. 201, 202. Spring. (Schrader.)

Hort. 206. Experimental Olericulture (2)—Two lectures. Prerequisites, Zool. 120, Plt. Phys. 101, or equivalent.

A course dealing with the field of cyto-genetics in relation to horticulture. Spring. (Mahoney.)

Hort. 207. Methods of Horticultural Research (2)—One lecture; one laboratory.

Methods in use by horticultural research workers in the United States and foreign countries are discussed in detail, critically evaluating such methods for use in solving present problems. Discussion of photographic technique, application of statistical procedures, physical measurements, plot designs, survey methods, and experimental materials will be emphasized. Fall. (Staff.)

Hort. 208. Advanced Horticultural Research (4, 6, or 8)—Credit given according to work done.

Graduate students will be required to select problems for original research in pomology, vegetable gardening, or floriculture. These problems will be continued until completed and final results will be in the form of a thesis. Summer, Fall, Spring. (Staff.)

Hort. 209. Advanced Seminar (1).

Oral reports with illustrative material are required on special topics or recent research publications in horticulture. Discussion by the students and staff members during and after each report is an essential part of the seminar. The aim of this course is to develop ability to analyze and to present research results orally as well as to review recent advances in horticulture. Summer, Fall; Spring, Summer. (Staff.)

LIBRARY SCIENCE

ASSOCIATE PROFESSOR HINTZ; MR. FOGG, MR. ROVELSTAD.

L. S. 1. Library Methods (1).

This course is intended to help students use libraries with greater facility and effectiveness. Instruction, given in the form of lectures and practical work, is designed to interpret the library and its resources to the student. The course considers the classification of books in libraries, the card catalogue, periodical literature and indexes, and certain essential reference books which will be found helpful throughout the college course and in later years. Summer, Spring, Fall.

L. S. 2. Sources of Business Information (1).

This course deals with the techniques and practices necessary to the efficient location of business information and the intelligent evaluation of sources of commercial data. Primarily intended for students in the College of Commerce but open to others. Not open to those who have received credit for L. S. 1. Fall.

MATHEMATICS

PROFESSOR DANTZIG; ASSOCIATE PROFESSOR MARTIN; ASSISTANT PROFESSORS LANCASTER, JACKSON, VEDOVA; DR. ALRICH, DR. NEWELL, DR. NILSON, DR. HUTCHINSON, DR. WILLIAMS, MR. WAGNER, MR. RAND, MR. CHESTON, MR. MURDICK, MISS MARRON.

Students taking Mathematics 21, 22, and 23 f s who excel in mathematical ability are eligible for enrollment in an honors section.

Math. 1. Introductory Algebra (0)—Three lectures. Prerequisite, one year of high school algebra. Open without credit to students of engineering, chemistry and physics who lack the required preparation for Math. 21, or have failed the qualifying examination in Mathematics.

Fundamental operations, quadratic equations, simultaneous quadratic equations, polynomials and their graphs, progressions, binomial theorem, exponentials and logarithms. Summer, Fall.

Math. 2. Solid Geometry (0)—Two lectures. Prerequisite, plane geometry. Open to students in engineering, mathematics and physics who do not offer the entrance credit of one-half unit of solid geometry.

Lines and planes, cylinders and cones, the sphere, polyhedra. Summer, Fall.

Math. 3. Plane and Spherical Trigonometry (1, 2, 3)—Three lectures. Prerequisite, high school algebra completed.

Students with credit in Math. 8 will receive 2 credits for this course. Students with credit in Math. 21 will receive 1 credit for this course.

Plane Trigonometry: Trigonometric functions, solution of triangles right and oblique, logarithms, identities, graphs, and solution of trigonometric equations.

Spherical Trigonometry: Solution of spherical triangles, right and oblique, applications to navigation. Summer, Fall, Spring.

Math. 4. Spherical Trigonometry and Navigation (3)—Prerequisite Math. 3, or 21, or equivalent.

This course is a sequel to Math. 3 and offers the student intensive training in spherical trigonometry. Special emphasis will be laid on the mathematical principles underlying navigation. Summer, Fall, Spring.

Math. 5. General Mathematics (3)—Prerequisite one year of high school algebra. Required of all students in the College of Commerce.

This course acquaints the student with the elementary mathematics necessary for the study of statistics and finance. The topics covered include linear equations, ratios, proportion, percentage, simple interest, discounts, exponents and radicals, logarithms, use of the slide rule, quadratic equations, graphs, arithmetic progressions, geometric progressions, binomial theorem and elements of statistics. Fall.

Math. 6. General Mathematics (3)—Prerequisite, Math. 4. Required of all students in the College of Commerce.

This course includes mathematical topics essential in the problems of finance, compound interest, compound discount, annuities, amortization funds, sinking funds, valuation of bonds, depreciation, probability, mortality tables and their application of insurance. Spring.

Math. 7. Solid Geometry (2)—Prerequisite, plane geometry. This course is designed to prepare a student for teaching geometry in high school and is open to students in the College of Education.

Lines and planes, cylinders and cones, the sphere, polyhedra, geometry on the sphere, regular solids. Summer, Fall.

Math. 8. Elements of College Mathematics (3)—Prerequisite, at least one year of high school algebra. Required of biological, premedical and premedical students.

Algebra: Quadratic equations, theory of equations, exponentials, logarithms, binomial theorem, permutations and combinations. *Trigonometry:* trigonometric functions, solution of triangles, trigonometric equations and identities. Summer, Fall, Spring.

Math. 9. Elements of College Mathematics (3)—Prerequisite, Math. 8 or equivalent. Required of biological, premedical and premedical students.

Analytic geometry: Cartesian coordinates, the straight line, the circle, the ellipse, graphing of elementary algebraic, exponential and logarithmic functions. *Calculus:* elementary theory of differentiation and integrations. Summer, Fall, Spring.

Math. 18 f s. Pictorial Geometry (4)—Two lectures. Required of students whose major is mathematics, and of students in the College of Education with mathematics as their major or minor.

The story of geometry, classical and modern synthetic and analytic, presented by means of drawings and models made by the students themselves. Fall, Spring.

Math. 21. College Algebra and Plane Trigonometry (4)—Three lectures; one laboratory. Prerequisite, high school algebra completed and satisfactory passing of a qualifying examination. Required of all students in the College of Engineering; of students whose major is mathematics, physics, or chemistry; of students in the College of Education who elect mathematics as their major or minor.

Algebra: binomial and multinomial expansions; progressions; determinants; combinatorial analysis and probabilities; complex numbers; theory of equations; exponential functions and logarithms.

Plane Trigonometry: Trigonometric functions, solution of triangles right and oblique, logarithms, and solution of trigonometric equations. Summer, Fall, Spring.

Math. 22. Analytic Geometry (4)—Three lectures; one laboratory. Prerequisite, Math. 21 or equivalent. Required of all students in the College of Engineering; of students whose major is mathematics, physics, or chemistry; of students in the College of Education who elect mathematics as their major or minor.

Cartesian and polar coordinates; line and circle; curves of the second order; higher algebraic and transcendental curves; periodograms; solid analytic geometry. Summer, Fall, Spring.

Math. 23 f s. Calculus (8)—Three lectures; one laboratory. Prerequisites, Math. 8 or 21, 22 or equivalent. Required of all students in the College of Engineering; of students with a major in mathematics, physics or chemistry; of students in the College of Education who elect mathematics as their major or minor.

Limits, derivatives, and differentials; maxima and minima; curvature; elements of curve theory; elementary theory of functions; partial derivatives. Indefinite and definite integrals; multiple integrals; calculation of arcs, areas, volumes, and moments; expansion in series. Summer, Fall, Fall, Spring; Spring, Summer.

For Advanced Undergraduates

Math. 61. Elementary Mathematics from Advanced Standpoint (2).

A survey course in high school mathematics intended for workers in biological and social sciences, and for prospective teachers of mathematics and physics. (Not offered 1942-43.) (Dantzig.)

Math. 62. College Mathematics (2)—Prerequisite, Math. 61 or equivalent.

A survey course of analytic geometry, and the calculus, intended for workers in the biological sciences and for prospective teachers of high-school mathematics and physics. (Not offered 1942-43.) (Dantzig.)

Math. 63. History of Elementary Mathematics (2).

History of arithmetic, algebra, and geometry. Spring. (Dantzig.)

Math. 64. Differential Equations for Engineers (3)—Prerequisite, Math. 23 f s or equivalent.

This course is conducted in close cooperation with the College of Engineering, and deals with aspects of mathematics which arise in engineering theory and practice. Among the topics treated are the following: linear differential equations; advanced methods in kinematics and dynamics; applications of analysis to electrical circuits, to aero-dynamics, bridge design, etc. Summer, Fall, Spring. (Martin, Newell.)

Math. 65. Applied Calculus for Chemists (3)—Prerequisite, Math. 23 f s or equivalent.

This course is conducted in close cooperation with the Chemistry Department, and deals with the aspects of mathematics which arise in the theory

and practise of chemistry. Among the topics treated are the following: partial and total derivatives; applications of mathematical analysis to thermo-dynamics, to molecular and atomic phenomena, and to physical chemistry. Spring. (Lancaster.)

For Advanced Undergraduates and Graduates

Math. 116. Advanced Trigonometry (2)—Prerequisite, Math. 23 f s or equivalent.

Complex numbers; De Moivre, Euler and allied identities; trigonometric series and infinite products; graphing of periodic functions; hyperbolic trigonometry; trigonometric solution of equations; principles of spherical trigonometry. (Not offered 1942-43.) (Dantzig.)

Math. 123. Vector Analysis (2)—Prerequisite, Math. 23 f s or equivalent.

Scalars, vectors, matrices and determinants; transformations; linear dependence; canonical forms; elementary divisors; applications to geometry and mechanics. Summer. (Alrich.)

Math. 130. Analytical Mechanics (2)—Prerequisite, Math. 23 f s.

Statics, equilibrium of a point and of flexible cords, virtual work, kinematics, dynamics of a particle, elementary celestial mechanics. Summer. (Martin.)

Math. 131. Analytical Mechanics (2)—Prerequisite, Math. 23 f s or equivalent.

Lagrangian equations for dynamical systems of one, two and three degrees of freedom. Hamilton's principle. The Hamilton-Jacobi partial differential equation. Fall. (Martin.)

Math. 132. Theory of Probabilities and Least Squares (2)—Prerequisite, Math. 23 f s or equivalent.

Frequency and probability, combinatorial analysis, addition and multiplication theorems, geometrical probability, inverse probability, applications to statistics and the theory of errors. (Not offered 1942-43.) (Lancaster.)

Math. 140. Seminar (4)—Open to juniors and seniors majoring in mathematics and graduate students.

This course is devoted to special topics not taken up in the regularly scheduled courses. Summer, Fall, Spring. (Staff.)

Math. 141. Higher Algebra (2)—Prerequisite, Math. 23 f s or equivalent.

Identities; multinomial expansion; combinatorial analysis; mathematical induction; undetermined coefficients; determinants; elementary theory of equations; complex magnitudes. Summer. (Nilson.)

Math. 142. Higher Algebra (2)—Prerequisite, Math. 23 f s or equivalent.

Inequalities; continued fractions; summation of series; difference equations; theory of numbers; diophantine equations. Fall. (Nilson.)

Math. 143. Advanced Calculus (2)—Prerequisite, Math. 23 f s or equivalent.

General methods of integration; multiple integration with physical applications; partial differentiation; geometrical and physical applications; mean value theorem; Jacobians; envelopes. Spring. (Newell.)

Math. 144. Advanced Calculus (2)—Prerequisite, Math. 23 f s or equivalent.

Elliptic integrals; line integrals; Green's theorem; equation of continuity; applications to hydrodynamics. Summer. (Newell.)

Math. 145. Advanced Plane Analytic Geometry (2)—Prerequisite, Math. 23 f s or equivalent.

Homogeneous coordinates; advanced theory of conic sections; Plücker characters of algebraic curves; cubic and quartic curves; Cremona transformations. Summer. (Jackson.)

Math. 146. Solid Analytic Geometry (2)—Prerequisite, Math. 23 f s or equivalent.

General Theory of quadric surfaces; the twisted cubic; line geometry; geometry on a sphere; cubic and quartic surfaces. Fall. (Jackson.)

Math. 151. Theory of Equations (2)—Prerequisite, Math. 23 f s or equivalent.

Complex numbers; fundamental theorem of algebra; equations of the third and fourth degree; algebraic solution of equations; finite groups; numerical solution of equations; criteria of irreducibility; cyclotomic equations. Spring. (Nilson.)

Math. 152. Introduction to Modern Algebra (2)—Prerequisite, Math. 23 f s or equivalent.

Vectors; matrices; linear dependence; quadratic forms; infinite groups. Summer. (Nilson.)

Math. 153. Advanced Differential Equations (2)—Prerequisite, Math. 23 f s or equivalent.

Equations of the first order; linear equations with constant and variable coefficients; change of variables; singular solutions; solution in series; numerical integration; ordinary differential equations in three variables; partial differential equations. Summer. (Lancaster.)

Math. 154. Topics in Analysis (2)—Prerequisite, Math. 23 f s or equivalent.

Theory of vibrations; Fourier series; calculus of variations; entropy; improper integrals. Fall. (Lancaster.)

Math. 155. Introduction to Projective Geometry (2)—Prerequisite, Math. 23 f s or equivalent.

The theorems of Desargues and Pappus; cross-ratio and homography; projective theory of conics; projective interpretation and generalization of elementary geometry. Spring. (Jackson.)

Math. 156. Introduction to Differential Geometry (2)—Prerequisite, Math. 23 f s or equivalent.

Infinitesimal properties of plane curves; transformations; orthogonal trajectories; envelopes, roulettes and glissettes; curvilinear coordinates in the plane. Summer. (Jackson.)

Math. 171. Applied Mathematical Analysis (2)—Prerequisite, Math. 23 f s or equivalent.

Intended for advanced undergraduate and graduate students in engineering, mathematics, physics and chemistry. Ballistics, dynamical stability in flight, stress analysis, graphical statics, cryptography, and communications will be included among the subjects discussed. Summer. (Newell.)

For Graduates

Math. 220. Theory of Functions of a Complex Variable (2)—Prerequisites, Math. 143, 144 or equivalent.

Complex numbers, power series, integration of analytic functions, Cauchy integral formula, Cauchy theory of analytic functions, special analytic functions. Summer. (Newell.)

Math. 221. Theory of Functions of a Complex Variable (2)—Prerequisite, Math. 220 or equivalent.

Meromorphic functions, Weierstrass theory of analytic functions, analytic continuation and Riemann surfaces, conformal representation. Fall. (Newell.)

Math. 222. Theory of Functions of a Real Variable (2)—Prerequisites, Math. 143, 144 or equivalent.

Real numbers, continuous functions, differentiable functions, uniform convergence, implicit functions, Jacobians, the Riemann integral, infinite series, dominant functions, real analytic functions. (Not offered 1942-43.) (Martin.)

Math. 224. Theory of Functions of a Real Variable (2)—Prerequisite, Math. 222 or equivalent.

Point sets, Heine-Borel theorem, content and measure of point sets, the Lebesgue integral. (Not offered 1942-43.) (Martin.)

Math. 225. Projective Geometry (2)—Prerequisite, Math. 155 or equivalent.

Axiomatic development of geometry; fundamental theorems; projective equivalence; the group of collineations in the plane and in space; non-Euclidean geometries. (Not offered 1942-43.) (Jackson.)

Math. 226. Differential Geometry (2)—Prerequisite, Math. 156 or equivalent.

Principles of vector analysis; skew curves; kinematical applications; geometry on a surface; general theory of surfaces; curvature and space structure; Riemannian geometries. Fall. (Jackson.)

Math. 227. Infinite Processes (2)—Prerequisite, Math. 143, 144 or equivalent.

Convergence of infinite series and products; Fourier series; orthogonal functions; asymptotic series. Spring. (Lancaster.)

Math. 231. Partial Differential Equations with Applications to Mathematical Physics (2)—Prerequisites, Math. 143, 144, 153, or equivalent.

Partial differential equations of the first and second order; linear equations; total differential equations; equations of the Monge-Ampère type; the Laplace equation; harmonics; applications to electricity, heat, elasticity, and hydrodynamics; potential theory. (Not offered 1942-43.) (Martin.)

Math. 232. Theory of Probabilities and Least Squares (2)—Prerequisite, Math. 132 or equivalent.

Frequency and probability; the concept of "equally likely"; combinatorial analysis; addition and multiplication theorems; Bernoulli's Theorem; continuous probabilities; applications to statistics, to theories of errors and correlations, and to molecular theories. (Not offered 1942-43.) (Lancaster.)

Math. 235. Modern Algebra (2)—Prerequisite, Math. 151, 152 or equivalent.

Sets; classes; groups; isomorphism; rings; fields; Galois theory; ordered and well-ordered sets; ideals; linear algebras. (Not offered 1942-43.) (Nilson.)

Math. 240. Graduate Colloquium.

A forum for the presentation and critical discussion of mathematical research conducted by the faculty and advanced students. (Staff.)

Math. 250. Seminar in the History of Mathematics (4)—Prerequisite, Math. 23 f s or equivalent.

Celebrated Problems of Mathematics from antiquity to present day. History of individual mathematical disciplines such as the theory of numbers, non-Euclidean geometry, vector and matrix analysis, theory of functions, theory of groups, theory of aggregates. Special emphasis will be laid on the evolution of mathematical concepts and principles. (Dantzig.)

Selected Topics Courses

In addition to the preceding, a number of courses will be offered from time to time by the various members of the staff in their respective fields of specialization. These courses are intended primarily for candidates for an advanced degree, and aim at developing materials for dissertations; they will, however, be open to any qualified student.

Math. 242. Selected Topics in Modern Geometry. (Dantzig, Jackson.)

Math. 243. Selected Topics in Modern Analysis. (Lancaster, Newell, Nilson.)

Math. 244. Selected Topics in Dynamics. (Martin.)

Math. 245. Selected Topics in Mathematical Physics. (Martin.)

Math. 246. Selected Topics in Applied Mathematics. (Dantzig, Alrich.)

Math. 247. Selected Topics in Differential and Difference Equations. (Lancaster.)

Math. 260. Research.

The investigation of special problems and the preparation of a thesis towards an advanced degree. (Staff.)

MILITARY SCIENCE AND TACTICS

PROFESSOR OF MILITARY SCIENCE AND TACTICS, COLONEL R. E. WYSOR, JR.;
ASSISTANT PROFESSORS OF MILITARY SCIENCE AND TACTICS, LIEUTENANT COLONEL H. C. GRISWOLD, MAJOR PAUL M. ELLIS, CAPTAIN EDWARD F. QUINN, JR., CAPTAIN RALPH I. WILLIAMS, LIEUTENANT GORDON L. JUDD, LIEUTENANT ROBERT W. JONES, LIEUTENANT HAROLD L. KELLY, JR.;
INSTRUCTORS: SERGEANTS MARS, MARTIN, NORRIS, UHRINAK.

M. I. 1 f s. Basic R. O. T. C. (2)—Two theoretical, three practical periods.

First Semester: History and organization of the R. O. T. C., Military history and policy of the United States, Military courtesy and discipline, Map reading, Close and extended order drill.

Second Semester: Close and extended order drill, Military organization, Rifle marksmanship, Military sanitation and first aid. Summer, Fall; Fall, Spring; Spring, Summer.

M. I. 2 f s. Basic R. O. T. C. (4)—Two theoretical, three practical periods.

First Semester: Close and extended order drill, Tactics of Rifle and automatic rifle squad, Scouting and patrolling.

Second Semester: Close and extended order drill, Weapons, Tactics of the squad in combat. Summer, Fall; Fall, Spring; Spring, Summer.

For Advanced Undergraduates

M. I. 50 f s. Advanced R. O. T. C. (6)—Three theoretical, four practical periods. Junior Year.

First Semester: Principles of command and leadership, Weapons, including heavy machine gun, Combat orders and estimate of situation, Tactics of the rifle platoon, Interior guard duty.

Second Semester: Principles of command and leadership, Aerial photograph reading, Administration, Chemical warfare defense, Combat training, Bayonet training, Combat firing. Summer, Fall; Fall, Spring; Spring, Summer.

M. I. 51 f s. Advanced R. O. T. C. (6).—Three theoretical, four practical periods. Senior year.

First Semester: Application of command and leadership, principles; Methods of instruction, Combat training, Interior guard duty, Bayonet training.

Second Semester: Military history and policy, Military law, Administration, Combat training, to include tactics of the rifle and heavy weapons company, Combat field exercises. Summer, Fall; Fall, Spring; Spring, Summer.

MODERN LANGUAGES

PROFESSORS ZUCKER, FALLS; ASSOCIATE PROFESSOR KRAMER; ASSISTANT PROFESSORS DARBY, PRAHL; MISS WILCOX, DR. SCHWEIZER, MR. LIOTARD, DR. MILLER, MR. EVANGELIST, MR. MUTZIGER, MR. BACKENSTOSS, MR. BANTA, MR. COLE, DR. CUNZ.

At the beginning of each semester a Placement Examination is given for all students who have had some foreign language and wish to do further work in that language. By this means the Department assigns each student to the suitable level of instruction.

A. Chinese

Chinese 1 f s. Elementary Chinese (6).

Elements of pronunciation, grammar, translation, and composition. Summer, Fall, Spring.

Chinese 2. Elementary Conversation (1)—Prerequisite, the grade of A or B in Chinese 1 f. Qualified students who are interested in Chinese should take this course in conjunction with Chinese 1 s. Fall, Spring.

B. French

French 1 f s. Elementary French (6)—Students who offer two units in French for entrance, but whose preparation is not adequate for second-year French, receive half credit for this course.

Elements of grammar; composition; pronunciation and translation. Summer, Fall, Spring.

French 2. Elementary Conversation (1)—Prerequisite, the grade of A or B in French 1 f. Qualified students who are interested in French should take this course in conjunction with French 1 s. Summer, Fall, Spring.

French 3 f s. Intermediate Literary French (6)—Prerequisite, French 1 f s or equivalent. Second-year French for students interested in litera-

ture or in fields related to literature. Students who expect to do major or minor work in French are required, however, to take French 6 in place of the second semester of this course.

Translation; conversation; exercise in pronunciation. Reading of texts designed to give some knowledge of French life, thought, and culture. Summer, Fall, Spring.

French 4. Intermediate Conversation (2)—Prerequisite, the grade of A or B in French 3 f or 5 f. Qualified students who expect to take advanced courses in French literature should take this course in conjunction with French 3 s, 5 s, or 6.

Practical exercises in conversation, based on material dealing with French history, art, and music. Summer, Fall, Spring.

French 5 f s. Intermediate Scientific French (6)—Prerequisite, French 1 f s or equivalent. Second-year French for students specializing in the sciences. Students who expect to do major or minor work in French are required, however, to take French 6 in place of the second semester of this course.

Translation; conversation; exercises in pronunciation. Reading of scientific texts. Summer, Fall, Spring.

French 6. Grammar Review (3)—Prerequisite, French 3 f, 5 f, or equivalent. This course gives the same credit as do French 3 s and French 5 s, and may be taken in place of these courses. It is required of second-year French students who expect to major or minor in French.

An intensive review of the elements of French grammar; verb drills; composition. Summer, Fall, Spring.

For Advanced Undergraduates

French 51, 52. The Development of the French Novel (3, 3).

Introductory study of the history and growth of the novel in French literature; of the lives, works, and influence of important novelists. Reports. French 51 covers the 17th and 18th centuries, French 52 the 19th century. (Not offered 1942-43.)

French 53, 54. The Development of the French Drama (3, 3).

Introductory study of the French drama. Translation, collateral reading, reports. French 53 covers the seventeenth and eighteenth centuries, French 54 the 19th century. Summer, Fall.

French 55, 56. The Development of the Short Story in French (3, 3).

A study of the short story in French literature; reading and translation of representative examples. French 55, Spring; French 56.

French 59 f s. French Phonetics (2)—Prerequisite, French 1 f s. Summer, Fall, Spring. (Wilcox.)

French 60 f s. Intermediate Grammar and Composition (6)—Three lectures. Prerequisite, French 3 f s, 5 f s. Summer, Fall, Spring. (Wilcox.)
(French 59 f s and 60 f s are required of students preparing to teach French.)

French 75, 76. Introduction to French Literature (3, 3)—Prerequisite, French 3 f s or 5 f s.

An elementary survey introducing the student to the chief authors and movements in French literature. French 75 covers the Middle Ages, Renaissance, and Seventeenth century. French 76 is devoted to the eighteenth and nineteenth centuries. This course is given in French. French 75, Fall; French 76, Summer, Spring. (Falls.)

French 99. Rapid Review of the History of French Literature (1)—Weekly lectures stressing the high points in the history of French literature, art, and music. This course provides a rapid review for majors by means of a brief survey of the entire field. Fall.

For Advanced Undergraduates and Graduates

A more intensive survey of modern French literature is offered by means of rotating courses roughly divided by centuries.

French 101. French Literature of the 16th Century (2).

The beginning and development of the Renaissance in France. Prose and poetry of the period. (Not offered 1942-43.) (Falls.)

French 104. French Prose and Poetry of the Seventeenth Century (2).

A study of the genres dominated by La Fontaine, Pascal, Boileau, and the "écrivains mondains." Spring. (Wilcox.)

French 105. The Theatre in France in the Seventeenth Century (2).

A study of the development of the classical tradition as exemplified by the works of Corneille, Racine, and Molière. A continuation of French 104. Fall. (Wilcox.)

French 106. French Life and Thought in the Seventeenth Century as Reflected in Contemporary Memoirs and Letters (2).

A continuation of French 104 and 105. Summer. (Wilcox.)

French 107. French Literature of the 18th Century (2).

A study of the drama, poetry, and novels of the period. (Not offered 1942-43.) (Falls.)

French 108. French Literature of the 18th Century (2)—Two lectures.

The philosophical and scientific movement from Saint-Evremond and Bayle to the French Revolution. (Not offered 1942-43.) (Falls.)

French 110. French Poetry in the Nineteenth Century (2).

A study of the Romantic, Parnassian, and Symbolist movements. Summer. (Wilcox.)

French 111. French Prose in the Nineteenth Century (2).

A study of the evolution of the major prose genres, beginning with the Romantic period. A continuation of French 110. Fall. (Wilcox.)

French 112. The Theatre in France in the Nineteenth Century (2).

A study of the significant dramatic writers of each movement beginning with the Romantic period. A continuation of French 110 and 111. Spring. (Wilcox.)

French 113. French Literature of the 20th Century (2).

The novel in the twentieth century. Fall. (Liotard.)

French 114. French Literature of the 20th Century (2).

Drama and poetry from Symbolism to the present time. Spring. (Liotard.)

French 115. French Thought in the 20th Century (2).

A survey of the intellectual, religious, and political problems of present-day France, with special emphasis on their relation to contemporary literature. Summer. (Liotard.)

French 120 f s. Advanced Composition (6)—Prerequisite, the grade of C or above in French 60 f s. This course is required of students preparing to teach French.

Advanced exercises in translation from English to French; letter-writing and free composition. The purpose of this course is to enable the advanced student to acquire a more complete mastery of French grammar, a finer feeling for shades of expression. Summer, Fall, Spring. (Falls.)

(Attention is also called to Comparative Literature 105, *Romanticism in France*.)

For Graduates

(Any of the following graduate courses will be given upon sufficient request by qualified students.)

French 201. Research (2-4)—Credits determined by work accomplished. (Staff.)

French 202 f s. Diderot and the Encyclopaedists (4).

First semester, life and philosophical works of Diderot.
Second semester, history of the *Encyclopaedia*; study of the most important Encyclopaedists. (Falls.)

French 204 f s. Georges Duhamel, Poet, Dramatist, Novelist (4).

This course offers a critical study of the works of Georges Duhamel, one of the most significant of contemporary French writers. (Falls.)

French 205 f s. French Literature of the Middle Ages and the Renaissance (4). (Darby.)

French 207, 208. *The French Novel in the First Half of the Nineteenth Century* (2, 2).

First semester, the origin of the nineteenth-century French novel; the first great Romantic novelists.

Second semester, the development and transformation of the Romantic novel.

French 209, 210. *The French Novel in the Second Half of the Nineteenth Century* (2, 2).

First semester, Balzac's successors; Realism and Naturalism.

Second semester, chief novelists of the end of the century; sources of contemporary French fiction. (Falls.)

French 213. *Introduction to Old French* (2). (Darby.)

French 215. *Seminar* (1-2)—One meeting weekly. Required of all graduate students in French. (Staff.)

French 221, 222. *Reading Course* (2, 2).

Designed to give graduate students the background of a survey of French literature. Extensive outside reading with reports and connecting lectures. (Falls.)

C. German

German 1 f s. *Elementary German* (6)—Students who offer two units in German for entrance, but whose preparation is not adequate for second-year German, receive half credit for this course.

Elements of grammar; composition; pronunciation and translation. Summer, Fall, Spring.

German 2. *Elementary Conversation* (1)—Prerequisite, the grade of A or B in German 1 f. Fall, Spring.

German 3 f s. *Intermediate Literary German* (6)—Prerequisite, German 1 f s or equivalent. Reading of narrative prose, grammar review, and oral and written practice. Summer, Fall, Spring.

German 4. *Intermediate Conversation* (2)—Prerequisite, the grade of A or B in German 3 f or 5 f. Qualified students who expect to take advanced work in German literature should take this course in conjunction with German 3 s, 5 s or 7. Practical exercises in conversation; based on material dealing with German history, art, and music. Fall, Spring.

German 5 f s. *Intermediate Scientific German* (6)—Reading of technical prose, with some grammar review. Summer, Fall, Spring.

German 6. *Grammar Review* (2)—Designed particularly for students who enter with three or more units in German and who expect to do advanced work in the German language or literature, but who are not prepared to take German 60 f s. Properly qualified students may elect this course at the same time as German 51 or 53. Spring, Fall.

German 7. *Military German* (3)—Prerequisite, German, 3 f or 5 f.

Reading of technical prose concerned with military tactics and operations. Summer, Fall, Spring.

For Advanced Undergraduates

German 51, 52. *Advanced German* (3, 3)—Prerequisite, German 3 f s or 5 f s or equivalent.

Rapid reading of novels and short stories from recent German literature. Summer, Fall.

German 53, 54. *Advanced German* (3, 3)—Prerequisite, German 3 f s or 5 f s or equivalent.

Rapid reading of dramas from recent German literature. German 53, Spring; German 54 not offered 1942-43.

German 59. *German Phonetics* (1)—Prerequisite, German 1 f. Summer, Fall, Spring.

German 60 f s. *German Grammar and Composition* (4)—Prerequisite, German 3 f s or 5 f s or equivalent.

A thorough study of the more detailed points of German grammar with ample practice in composition work. This course is required of students preparing to teach German. Fall.

German 75, 76. *Introduction to German Literature* (3, 3)—Prerequisite, German 3 f s or 5 f s or equivalent.

An elementary survey of the history of German literature; a study of representative authors and works. Fall, Spring.

German 99. *Rapid Review of the History of German Literature* (1).

Weekly lectures stressing the high points in the history of German literature, art, and music. This course provides a rapid review for majors by means of a brief survey of the entire field. Fall.

For Advanced Undergraduates and Graduates

German 107, 108. *German Literature of the 18th Century* (3, 3).

German 107, the earlier classical literature. German 108, the later classical literature. German 107, Spring; German 108 not offered 1942-43. (Prah.)

German 110, 111. *German Literature of the 19th Century* (3, 3).

German 110, Romanticism and Young Germany. German 111, The Literature of the Empire. (Not offered 1942-43.) (Prah.)

German 113, 114. *Contemporary German Literature* (3, 3).

A study of the lives, works, and influence of outstanding authors of the present. Summer, Fall. (Prah.)

(Attention is also called to Comparative Literature 106, *Romanticism in Germany*, and Comparative Literature 107, *The Faust Legend in English and German Literature*.)

For Graduates

(Any of the following graduate courses will be given upon sufficient request by qualified students.)

German 201. Research (2-4)—Credits determined by work accomplished.
(Staff.)

German 202 f s. The Modern German Drama (4).

Study of the naturalistic, neo-romantic, and expressionistic drama against the background of Ibsen and other international figures.
(Prahl.)

German 203 f s. Schiller (4).

A study of the life and works of Schiller, with emphasis on the history of his dramas.
(Prahl.)

German 204. Goethe's Faust (2).

(Zucker.)

German 205. Goethe's Works Outside of Faust (2).

(Zucker.)

German 206 f s. The Romantic Movement (4).

(Prahl.)

German 210. Seminar (1-2)—Required of all graduate students in German.
(Staff.)

German 214. Middle High German (3).

(Mutziger.)

German 220, 221. Reading Course (2, 2)—One conference. Designed to give graduate students the background of a survey of German literature. Extensive outside reading with reports and connecting lectures.
(Prahl.)

German 231. Introduction to Indo-European Linguistics (3). (Mutziger.)

D. Italian

Italian 1 f s. Elementary Italian (6)—Open to freshmen. Also recommended for advanced students in French and Spanish. Drill in pronunciation and in the elements of the language. Reading of short stories from modern authors. Fall, Spring, Summer.

Italian 2. Elementary Conversation (1)—Prerequisite, the grade of A or B in Italian 1 f. Qualified students who are interested in Italian should take this course in conjunction with Italian 1 s. Fall, Spring.

E. Portuguese

Portuguese 1 f s. Elementary Portuguese (6)—Drill in pronunciation and in the elements of grammar; composition and translation. Fall, Spring, Summer.

Portuguese 2. Elementary Conversation (1)—Prerequisite, the grade of A or B in Portuguese 1 f. Qualified students who are interested in Portuguese should take this course in conjunction with Portuguese 1 s. Fall, Spring.

F. Russian

Russian 1 f s. Elementary Russian (6)—Elements of grammar; composition; pronunciation and translation. Fall, Spring, Summer.

Russian 2. Elementary Conversation (1)—Prerequisite, the grade of A or B in Russian 1 f. Qualified students who are interested in Russian should take this course in conjunction with Russian 1 s. Fall, Spring.

G. Spanish

Spanish 1 f s. Elementary Spanish (6)—Students who offer two units in Spanish for entrance, but whose preparation is not adequate for second-year Spanish, receive half credit for this course.

Elements of grammar; composition; pronunciation and translation. Fall, Spring, Summer.

Spanish 2. Elementary Conversation (1)—Prerequisite, the grade of A or B in Spanish 1 f.

Qualified students who are interested in Spanish should take this course in conjunction with Spanish 1 s. Fall, Spring.

Spanish 3 f s. Second-Year Spanish (6)—Prerequisite, Spanish 1 f s or equivalent.

Reading of narrative works and plays; grammar review; oral and written practice. Fall, Spring, Summer.

Spanish 4. Intermediate Conversation (2)—Prerequisite, the grade of A or B in Spanish 3 f. Qualified students who expect to take advanced work in Spanish literature should take this course in conjunction with Spanish 3 s.

Practical exercises in conversation based on material dealing with Spanish history, art, and music. Fall, Spring.

Spanish 6. Grammar Review (2)—Designed particularly for students who enter with three or more units in Spanish, who expect to do advanced work in the Spanish language or literature, but who are not prepared to take Spanish 60 f s. Properly qualified students may elect this course at the same time as Spanish 75, 76. Summer, Fall.

For Advanced Undergraduates

Spanish 60 f s. Advanced Composition and Conversation (4)—Prerequisite, Spanish 3 f s or equivalent.

Introduction to phonetics; oral and written composition. This course is required of students preparing to teach Spanish. Fall, Spring.

Spanish 75, 76. Introduction to Spanish Literature (3, 3).

An elementary survey introducing the student to the chief authors and movements in Spanish literature. Summer, Fall; Spring, Summer.

Spanish 99. Rapid Review of the History of Spanish Literature (1).

Weekly lectures stressing the high points in the history of Spanish literature, art, and music. This course provides a rapid review for majors by means of a brief survey of the entire field. Fall.

For Advanced Undergraduates and Graduates**Spanish 101. Modern Spanish Thought (3).**

Essays and critical writing of the 20th century. The Generation of 1898. (Not offered 1942-43.) (Darby.)

Spanish 102. Epic and Ballad (3).

The legends and heroic matter of Mediaeval Spain. Summer. (Darby.)

Spanish 103. The Drama of the Golden Age (3). Fall. (Darby.)**Spanish 104. The Drama in the 19th Century (3). Fall. (Darby.)****Spanish 105. Modern Drama (3).—(Not offered 1942-43.) (Darby.)****Spanish 106 f s. Cervantes (6).**

The life and times of Cervantes; principal prose works. (Not offered 1942-43.) (Darby.)

Spanish 107. The Spanish Novel of the Golden Age and the 18th Century (3).—(Not offered 1942-43.) (Darby.)**Spanish 108. The Novel in the 19th Century (3).—(Not offered 1942-43.) (Darby.)****Spanish 109. Modern Novel (3).**

Novels of the 20th Century. (Not offered 1942-43.) (Darby.)

Spanish 120. Advanced Composition (3).—Prerequisite, Spanish 60 f s or the consent of the instructor.

Extensive practice in composition and grammar for students who are completing major or minor requirements in Spanish. Conducted in Spanish. (Not offered 1942-43.) (Darby.)

Spanish 125. Lope de Vega (3).

Detailed study of characteristic plays. Summer. (Darby.)

Spanish 135. Galdós (3).

Detailed study of representative novels and dramas. (Not offered 1942-43.) (Darby.)

Spanish 151. Latin-American Literature: The Colonial Period (3). Fall. (Darby.)**Spanish 152. Latin-American Literature: The 19th Century (3). Spring. (Darby.)****Spanish 153. Latin-American Literature: The Modern Period (3).—(Not offered 1942-43.) (Darby.)****For Graduates**

(Any of the following graduate courses will be given upon sufficient request by qualified students.)

Spanish 201. Research (2-4).—Credits determined by work accomplished. (Darby.)**Spanish 202 f s. The Golden Age in Spanish Literature (6). (Darby.)**
Detailed study of the classical authors.**Spanish 203. Spanish Poetry (3). (Darby.)**
The epic, the ballad and popular poetry, early lyrics, poetry of the Golden Age.**Spanish 204. Spanish Poetry (3). (Darby.)**
Poetry of the eighteenth, nineteenth, and twentieth centuries.**Spanish 210. Seminar (1-2).—One meeting weekly. Required of all graduate students. (Darby.)****Spanish 213. Introduction to Old Spanish (2). (Darby.)****Spanish 220, 221. Reading Course (2, 2).—One conference.**

Designed to give graduate students the background of a survey of Spanish literature. Extensive outside reading with reports and connecting lectures. (Darby.)

MUSIC

ASSISTANT PROFESSOR RANDALL; MRS. GAVIN.

Music 1 f s. Music Appreciation (2).—(1 f not prerequisite to 1 s.)

A study of all types of classical music with a view to developing the ability to listen and enjoy. Lecture recitals will be presented with the aid of performers and records. A study of the orchestra and the instruments that it employs. A study of musical form. The development of the opera and oratorio. Great singers of the past and present. Well-known musicians occasionally appear as guest lecturers and performers. Fall, Spring.

Music 2 f s. History of Music (2).—(1 f not prerequisite to 1 s.)

A comprehensive course in the history of music covering the development of all forms of music from ancient times through the renaissance; the classic and the romantic schools; and the more modern composers. Fall, Spring.

Music 3. Chorus (½).

This course is offered for those interested in part-singing. After voice trials, students who have ability to read and sing music of the grade of easy songs are admitted. Members of the Women's Chorus and the Men's Glee Club indicated hereafter are combined at times for mixed chorus singing. Summer, Fall, Spring.

(A) *Women's Chorus.* Study of part-singing for women's voices. Credit is awarded for each year's regular attendance at weekly rehearsals and participation in public performances of the chorus.

(B) *Men's Glee Club*. Study of part-singing for men's voices. Credit is awarded for each year's regular attendance at weekly rehearsals and participation in public performances of the Glee Club.

Music 4. Orchestra (½).

The purpose of the University Orchestra is study of the classics. Works of the standard symphonists from Haydn and Mozart to Wagner and the modern composers are used. Students who play orchestral instruments are eligible for membership. At least one rehearsal of two hours' duration is held each week, and all players are expected to take part in public performances. Fall, Spring.

Music 5 f s. Harmony (4).

This course includes a study of major and minor scales, intervals, harmonic progressions, primary and secondary triads in root position and first and second inversions, the dominant seventh chord in its root position and inversions, altered and mixed chords and modulation.

The above theory is taught to give the student a basis for ear training, dictation, melody writing, and melody harmonization. Summer, Fall, Spring.

Music 6. Survey of Opera (2).

The object of this course is to acquaint the student with the librettos, music and the composers of the widely used operas. The best examples from standard operatic literature will be studied. Operatic singers and directors of the past and present will be discussed. Complete operatic recordings will be heard and in some cases the student will have the use of full scores to follow the recordings. The instructor and other singers will occasionally perform excerpts from opera. Summer.

PHILOSOPHY

PROFESSOR MARTI

Phil. 1. Fundamentals of Philosophy (3)—Required course for pre-medical students. Open to others by special permission.

Problems pertaining to the study of man, presented with a constant regard for the needs of prospective students of medicine. Summer, Fall, Spring.

Phil. 2. Ethics (3)—Sophomore course. Open to freshmen only by special permission.

An introductory course in philosophy, stressing its function in daily life, in education, in society, and in statecraft. Spring.

Phil. 11 f s. The Occidental Tradition (6)—Open to sophomores and upper-classmen who attained a 2.5 average in the previous semester. Open to others only by special permission of their Dean and of the Department

of Philosophy. By special permission, a student who has had one course in philosophy may register and get credit for either of the two semesters separately.

An introductory survey of the history of ideas in the Occident. First semester: Ancient and medieval thought. Second semester: Modern thought. The purpose of the course is to give students the conceptual means by which to integrate their collegiate growth, and to train them in the method of such integration. Fall, Spring.

For Advanced Undergraduates

Phil. 51. Metaphysics (3)—Prerequisite, one course in philosophy. May be taken simultaneously with the second semester of Phil. 11 f s.

A course in philosophical thinking, designed for students desiring a clearer conception of basic reality, and for the needs of prospective teachers and theologians. Fall, Spring. (Marti.)

For Advanced Undergraduates and Graduates

Phil. 181, 182, 183, 184. Proseminar in Philosophy (3)—Two-hour seminar session, one hour tutorial. Or three lectures. Open to undergraduates only by special permission of the Department of Philosophy, and to graduates only after consultation with the Head of the Department of Philosophy.

The philosophical proseminar is designed for specially qualified undergraduates who have had the necessary preliminary work, and for graduate students desiring the help of philosophy in the study of their respective fields. The content of the course will be chosen so as to serve the needs of the group of students enrolled. As a rule, the content will cover a different field every semester. If possible, the cooperation of a faculty member from another department will be secured, in which case there will be a weekly two-hour session, under the professor of philosophy and his extra-departmental colleague, and one weekly hour per student of philosophical tutorials. Summer, Fall, Spring. (Marti.)

Phil. 191, 192. Reading in Philosophy (2, 2)—Individual library work, and tutorials. Prerequisite, three courses in philosophy, and the permission of the Department of Philosophy.

Individual work for especially qualified advanced students, under supervision and with tutorial advice. Regular written reports and essays. Summer, Fall, Spring. (Marti.)

PHYSICAL EDUCATION

Physical Education for Men and Women

A. MR. WARNER, MR. ENGLISH.

B. PROFESSOR DREW; MISS DAVIS, MISS TERHUNE, MISS WATTS.

Phys. Ed. 1 f s. Physical Activities (2)—An activities course for male freshmen which meets three periods a week.

The activities taught are soccer, touch football, basketball, volleyball, soft baseball, track and natural gymnastics.

A special uniform is required of all men enrolled in this course.

Phys. Ed. 2 f s. Personal Hygiene (1)—Freshman course for women.

This course consists of instruction in hygiene. The health ideal and its attainments, care of the body by diet, exercise, sleep, bathing, etc., and social hygiene.

Phys. Ed. 3 f s. Physical Activities (4)—An activities course for sophomore men which meets three periods a week.

The activities taught are the team sports of the freshman year and individual sports which include fencing, wrestling, tumbling, boxing, ping pong, horseshoe pitching, handball, golf, tennis, and badminton.

A special uniform is required of all men enrolled in this course.

**Phys. Ed. 4 f s. Physical Activities (1)—Freshman course for women. Meets twice each week, with the exception of riding which meets one two-hour period each week. Summer, Fall, Spring.

Students may elect from a wide range of activities, including archery, bowling, dance, equitation, golf, hockey, tennis, etc.

The cost to the student varies in accordance with the activity chosen, and ranges from approximately \$0.00 to \$17.25 per semester.

Phys. Ed. 5 f s. Athletics (4)—Required of male freshmen in physical education. Meets five times a week.

Two periods are devoted to training in activities for squad leadership and three periods to participation in the activities of the general physical education program.

A special uniform is required of all men enrolled in this course.

Phys. Ed. 6 f s. Community Hygiene (2)—Sophomore course for women.

Continuation of the freshman course. The work in hygiene includes the elements of physiology; the elements of home school, and community hygiene; and a continuation of social hygiene. Fall, Spring.

**An activity program suited to need is arranged upon the recommendation of the University physician.

**Phys. Ed. 8 f s. Physical Activities (2)—Sophomore course for women. Meets twice each week. Summer, Fall, Spring.

A continuation of Phys. Ed. 4 f s. With the permission of the head of the department, a student may substitute activity courses offered in the major curriculum.

Phys. Ed. 10 f s. Dance (2)—Required of freshmen women whose major is Physical Education; open to others with the permission of the instructor.

This course includes practice in elementary techniques and considers the basic principles of time, force, and space underlying all dance. Opportunity is given for creating short dances in respect to form and content. Fall, Spring.

Phys. Ed. 12 f s. Athletics (4)—Required of freshmen women whose major is Physical Education. Meets twice each week plus two hours arranged in which the student acts as assistant in a section of Phys. Ed. 4 f s.

The following sports are considered: in the first semester, hockey, soccer, basketball, badminton, and volleyball; in the second semester, bowling, tennis, golf and soft ball. Summer, Fall, Spring.

Phys. Ed. 14 f s. Dance (2)—Prerequisite, Phys. Ed. 10 f s or equivalent. Required of sophomore women whose major is Physical Education. Open to others with the permission of the instructor.

This course includes practice in techniques of modern dance and a study of the contemporary field. Opportunity is given to create dance patterns for group or individual in respect to form and content. Fall, Spring.

Phys. Ed. 15 f s. Gymnastics (2)—An activities course required of sophomore men in Physical Education which meets three periods a week.

The activities taught are light and heavy gymnastics, including marching, calisthenics, tumbling, pyramid building, and exercise on apparatus.

*Phys. Ed. 18. Introductory Hygiene (2)—Required of all freshmen in Physical Education. Meets twice a week.

This course surveys the health practices of college students and their community in the light of standard criteria, to the end that the individual student may increase his ability to adapt himself to conditions of finer living. Fall.

*Phys. Ed. 20. Physical Education (3)—Required of sophomore men and women whose major is Physical Education. Meets twice each week.

This course considers interpretations and objectives of physical education. Spring.

Phys. Ed. 22 f s. Athletics (4)—Required of sophomore women whose major is Physical Education.

This course is a continuation of Phys. Ed. 12 f s. (Not offered 1942-43.)

**An activity program suited to need is arranged upon the recommendation of the University physician.

*Open to men and women.

For Advanced Undergraduates

*Phys. Ed. 52 f s. Physical Activities (2)—Required of junior men and women whose major is Physical Education; open to others with the permission of the instructor. Meets twice each week.

The course presents co-educational and co-recreational activities suitable for school, club, and recreation groups. Games and stunts for contests, picnics, school parties, and other social gatherings are considered. Fall, Spring.

*Phys. Ed. 63. Accident Prevention (1)—Required of all juniors in Physical Education. Meets twice a week.

This course is designed to help the professional student detect accident hazards in physical activities and to train him in safety precautions.

*Phys. Ed. 66. First Aid (1)—Required of junior men and women whose major is Physical Education. Meets twice each week.

The course presents the fundamentals necessary for offering aid in accidents and injuries until medical attention can be secured. Practical work is required of all students.

Phys. Ed. 67 f s. Gymnastics (2)—Prerequisite, Phys. Ed. 15 f s or equivalent. An activities course for juniors and seniors, which meets three periods a week.

This course is a continuation of Phys. Ed. 15 f s. Advanced work in tumbling, apparatus and pyramid building.

*Phys. Ed. 76 f s. Dance (2)—Required of junior men and women whose major is Physical Education; open to others with the permission of the instructor. Meets twice each week.

The course offers opportunity for the learning of the fundamental ballroom dance steps as well as the more modern routines. Attention is given to ballroom etiquette and the planning of dance parties. Fall, Spring.

*Phys. Ed. 78. Dance (1)—Required of junior women whose major is Physical Education; open to others with the permission of the instructor. Meets twice each week.

This course includes suitable teaching material in tap dancing for school or recreation groups. Fall.

*Phys. Ed. 90. Dance (1)—Required of junior women whose major is Physical Education; open to others with the permission of the instructor. Meets twice each week.

The course includes historical and contemporary folk dances, festivals, and customs of various countries as well as the costume appropriate for each. Spring.

*Open to men and women.

For Advanced Undergraduates and Graduates

Phys. Ed. 113 f s. Athletics (2)—Prerequisite, two years of successful intramural participation. Required of junior men in Physical Education. Meets once a week.

Problems of coaching and officiating in intramural play and high school athletics. Participation in the intramural program at the University, or in nearby schools, is a requirement of the course.

Phys. Ed. 114 f s. Athletics (2)—Prerequisites, Phys. Ed. 12 f s, 22 f s. Required of junior women whose major is Physical Education. Meets twice each week.

The student is given the opportunity to coach and officiate under supervision in the intramural program on the campus as well as to officiate in the schools of Washington, D. C., and Maryland. With the cooperation of the teachers in nearby schools the students plan and administer invitational sports days in the respective schools. Summer, Fall, Spring. (Drew.)

Phys. Ed. 119 f s. Athletics (2)—Prerequisite, Phys. Ed. 113 f s or equivalent. A practical course for senior men in Physical Education.

The aim of this course is to provide students with opportunities to assist in teaching, coaching, and officiating in the schools of Maryland and in the athletic tournaments conducted by these schools through the State Department of Education. The equivalent of two hours of practice is required each week. Individual conferences will be arranged in order that students may discuss with the instructor the problems that arise for them, and the class will meet occasionally to pool experiences.

Phys. Ed. 127 f s. Analysis of Activities (4).

An analysis of activities from the mechanical, anatomical, physiological, and psychological standpoint. Discussions, lectures, field study, and reports.

*Phys. Ed. 133. Nature of Play (2)—Required of junior men and women whose major is Physical Education. Meets twice each week.

The psychology of action, the uses of play, the types and organization of play activities and the management of play space are considered in the course. (Drew.)

*Phys. Ed. 137. Recreation (2)—Prerequisites, Phys. Ed. 113 f s or 114 f s, and three years of successful participation in intramural athletics or equivalent. Required of all majors in Physical Education. Meets twice a week.

The purpose of this course is to study the various aspects of character guidance through leadership in physical activities. Participation in planning, supervising, and directing the University program of intramural activities, or an equivalent situation, is a requirement of the course.

*Open to men and women.

*Phys. Ed. 144. Physical Education (2)—Prerequisites, Phys. Ed. 113 f s or 114 f s and three years of successful participation in intramural athletics or equivalent. Required of all seniors in Physical Education. Meets twice a week.

The organization and administration of programs of Physical Education in high school situations. Summer, Fall. (Drew.)

*Phys. Ed. 146. Teaching Health (2)—Two lectures. Prerequisites, Phys. Ed. 18, 13, 16. A course required of seniors in Physical Education. Meets twice a week.

Philosophy, aims, objectives, problems, materials, methods, and procedures for teaching health. (Drew.)

For Graduates

*Phys. Ed. 201. Problems of Health and Physical Education (3).

This course is designed to aid in solving the multitude of problems that arise in the administration of health and physical education in public schools. An attempt will be made to set up standards for evaluating the effectiveness of programs of health and physical education.

PHYSICS

PROFESSOR EICHLIN; ASSISTANT PROFESSOR _____; DR. MYERS,
MR. SMITH, _____.

Phys. 1 f s. General Physics (8)—Three lectures; one laboratory. Required of students in the premedical and predental curricula. This course satisfies the minimum requirement for a science major. Prerequisites, Math. 8 and 9, or 21 and 22.

A study of the physical phenomena in mechanics, heat, sound, light, magnetism, and electricity. Laboratory fee, \$5.00 per semester. Summer, Fall; Fall, Spring.

Phys. 2 f s. General Physics (10)—Four lectures; one laboratory. Required of all students in the engineering curricula, and of those with chemistry, mathematics, and physics majors. Elective for other students. Prerequisites, Math. 21 and 22 and 23 f s. The last may be taken concurrently.

A study of mechanics, heat, sound, light, magnetism, and electricity. Laboratory fee, \$5.00 per semester. Summer, Fall; Fall, Spring.

Phys. 3 f s. Introductory Physics (6).

This introductory course is designed to meet the needs of students who desire to become acquainted with the fundamental principles of physics. Instruction will be given by lectures, recitations, and experimental demonstrations. Laboratory fee, \$3.00 per semester. Summer, Fall; Fall, Spring.

*Open to men and women.

For Advanced Undergraduates

Phys. 51 f s. Photography (4)—One lecture; one laboratory. Prerequisite, Phys. 1 f s, 2 f s or 3 f s.

A study of the physical principles of the camera, enlarger, exposure meter, filter, and other photographic devices. Special emphasis on the application of photographic methods in the laboratory. Laboratory fee, \$5.00 per semester. (Not offered 1942-43.)

For Advanced Undergraduates and Graduates

Phys. 101. Precision of Measurements (3)—Prerequisites, Phys. 1 f s or 2 f s, or Math. 23 f s.

A discussion of the principles underlying the treatment of experimental data, as to precision of observations, errors, interpolation, curve analysis, etc., with especial emphasis on the planning of investigations involving measurements. The course is intended as an introduction to quantitative experimental work. Fall. (Eichlin.)

Phys. 102. Physical Measurements (3)—Two lectures; one laboratory. Prerequisite, Phys. 101.

This course, supplementing Phys. 101, is designed to familiarize the student with the manipulation of various types of apparatus used in experimentation in physical problems, and the adaptation and analysis of data so obtained. Laboratory fee, \$5.00. Spring.

Phys. 103 f s. Advanced Physics (6)—Prerequisite, Phys. 1 f s.

This course, supplementing Phys. 1 f s, is an advanced study of physical phenomena in optics, spectroscopy, conduction of electricity through gases, photoelectricity, etc., with a comprehensive review of basic principles involved. It is intended to familiarize the student in a general survey with some of the recent developments in physics. Fall, Spring. (Smith.)

Phys. 104 f s. Advanced Experiments (6)—One lecture; two laboratories. Prerequisite, Phys. 103 f s.

This course, supplementing Phys. 1 f s, is intended to provide the student with experience in experimental physics. Laboratory fee, \$5.00 per semester. (Not offered 1942-43.) (Smith.)

Phys. 105. Heat (3)—Two lectures; one laboratory. Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

The classical phenomena of heat and radiation are developed on the basis of the kinetic molecular theory and the quantum theory. The first and second laws of thermodynamics are applied to physical processes. Laboratory fee, \$5.00. Summer. (Myers.)

Phys. 106. Theoretical Mechanics (3)—Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

An analytical treatment of the fundamental principles of kinematics and dynamics is presented with problems to illustrate these principles. The use of generalized coordinates is illustrated. The equations of Lagrange are applied to selected topics in the field of dynamics. Summer. (Myers.)

Phys. 107. Optics (3)—Two lectures; one laboratory. Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

A study is made of selected topics in the refraction, reflection, interference, diffraction, and polarization of light. The principles are employed in a detailed study of optical systems of telescope, microscope, spectroscope, and interferometer. Laboratory fee, \$5.00. Fall. ()

Phys. 108 f s. Electricity (6)—Two lectures; one laboratory. Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

A study of electrical properties of matter and space with applications to common electrical instruments and apparatus. Laboratory fee, \$5.00 per semester. Fall, Spring.

Phys. 109 f s. Electron Physics (6)—Two lectures; one laboratory. Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

The discrete nature of matter, electricity, and radiation is emphasized from an empirical point of view. The determination of the fundamental electronic and molecular constants is treated in detail. The process of electrical discharge through gas and vacuum is ramified to include discussion of radioactivity, photoelectricity, thermionics, and atomic structure. Laboratory fee, \$5.00 per semester. Fall, Spring. (Myers.)

Phys. 110. Sound (3)—Two lectures; one laboratory. Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

A study is made of vibrating systems, the propagation and scattering of sound waves, standing sound waves, sound wave energy, etc. Laboratory fee, \$5.00. Summer. ()

Phys. 111, 112. Mathematical Physics (3, 3)—Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

Selected topics in physics will be treated to illustrate certain mathematical methods, particularly the use of derivatives and differentials, methods of integration, infinite series, vectors, ordinary and partial differential equations, orthonormal sets of functions. Fall, Spring. (Myers.)

Phys. 113, 114. Properties of Matter (3, 3)—Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

A study of the constituent particles of matter and such properties of matter as gravitation, molecular attraction, elasticity, special properties of solids and of fluids at rest and in motion, wave propagation. (Not offered 1942-43.) (Eichlin.)

Phys. 115 f s. High Frequency Phenomena (6)—Two lectures, one laboratory. Prerequisites, Phys. 1 f s or 2 f s, Math. 23 f s.

A study of resonant circuits, characteristics of electron tubes, high frequency generators, filters, electromagnetic waves, propagation of waves in wires and through a conducting medium. Laboratory fee, \$5.00 per semester. (Not offered 1942-43.) ()

Phys. 117 f s. Applied Mechanics (4)—Two lectures. Prerequisites, Phys. 2 f s, Math. 23 f s. Required of juniors in chemical engineering.

A study of the fundamentals and principles of the kinetics and kinematics of bodies in translation and rotation, and of elasticity of solids, with special regard to their engineering application. Summer, Fall; Fall, Spring. (Eichlin.)

For Graduates

Phys. 201. Atomic Structure (3).

A development of atomic theory by a discussion of the various atomic properties, particularly those of emission of spectra, scattering of x-rays and electrons, and valency. Summer. (Eichlin.)

Phys. 202. Atomic Spectra (3).

Interpretation of spectral series, fine and hyperfine structure, line intensities and polarization, line contours, and effects of external fields in light of modern atomic theory. Fall. (Myers.)

Phys. 203. Molecular Spectra (3).

A discussion of molecular spectra with particular reference to the information that is given about molecular structure, specific heats, entropy, and related phenomena. Spring. (Myers.)

Phys. 204, 205. Quantum Mechanics (3, 3).

A treatment of the general methods of quantum mechanics with applications to the theory of atomic and molecular structure, the theory of collision processes, and the theories of radiation and electrodynamics. Fall, Spring. ()

Phys. 206. Nuclear Structure (3).

The theory of the nucleus is developed by a discussion of masses, charges, magnetic moments, radioactivity, nuclear reactions, scattering, and interaction with radiation fields. Summer. (Myers.)

Phys. 207, 208. Modern Physics (3, 3).

A comprehensive survey of developments in physics leading to recent concepts of atomic structure, theory of radiation, interaction of radiation and matter, quantum theory, relativistic mechanics, cosmology. Fall, Spring. ()

Phys. 209. Dynamics (3).

A treatment of dynamical systems in generalized coordinates by the equations of Lagrange, of Hamilton, and of Hamilton-Jacobi, by the Hamiltonian Principle, and by the use of canonical transformations. (Not offered 1942-43.) (Myers.)

Phys. 210. Dynamics (3).

Derivation of the equations of motion of a fluid, a study of irrotational motion, vortex motion, motion of solids through liquids, waves through liquids, viscosity. (Not offered 1942-43.) (Myers.)

Phys. 211. Electrodynamics (3).

The electric and magnetic fields; properties of dielectrics; properties of electric conductors; electromagnetic induction; electromagnetic radiation; dispersion theory; electro- and magneto-optics. Summer. ()

Phys. 212. Physical Optics (3).

A mathematical study of the electromagnetic theory of light, with applications to interference, diffraction, dispersion, and polarization. Summer. ()

Phys. 213, 214. Theory of Elasticity (3, 3).

A comprehensive discussion of the development of theoretical concepts of elasticity with particular attention to torsion, stresses in beams, curved bars, thin plates stresses produced by dynamical causes, propagation of waves in solid media. Fall, Spring. (Eichlin.)

Phys. 215, 216. X-Ray and Crystal Structure (3, 3).

A discussion of the production and measurement of X-rays with the application of X-ray methods to the study of the physical properties of crystals. (Not offered 1942-43.) ()

Phys. 217 f s. Seminar (2).

Presentation of reports and discussion of current developments in physics and of original investigations on special problems. (Staff.)

POLITICAL SCIENCE

PROFESSOR HOWARD; ASSOCIATE PROFESSOR STEINMEYER;
ASSISTANT PROFESSORS BONE, KLINE; DR. KITCHIN, MR. LEATH.

Pol. Sci. 1. American National Government (3).

A study of the organization and functions of the national government of the United States. Summer, Fall, Spring.

Pol. Sci. 4. State and Local Government (3)—Prerequisite, Pol. Sci. 1.

A study of the organization and functions of state and local government in the United States, with special emphasis upon the government of Maryland. Summer, Fall, Spring.

Pol. Sci. 7. Comparative Government (2)—Prerequisite, Pol. Sci. 1.
Not open to freshmen.

A comparative study of the governments of Great Britain, France and Switzerland. Summer, Fall.

Pol. Sci. 8. Comparative Government (2)—Prerequisite, Pol. Sci. 7.

A comparative study of the dictatorial governments of Europe, with special emphasis upon Italy, Germany, and the U. S. S. R. Spring, Fall.

Pol. Sci. 9. Comparative Government (2)—Prerequisite, Pol. Sci. 7.

A study of Latin American Governments with special emphasis on Argentina, Brazil, and Chile. Summer, Fall.

Pol. Sci. 10. Comparative Government (2)—Prerequisite, Pol. Sci. 7.

A study of Far Eastern governments with special emphasis on China and Japan. Spring, Fall.

For Advanced Undergraduates

Pol. Sci. 51. International Relations (3)—Prerequisite, Pol. Sci. 1 or consent of instructor.

The course deals with the major factors underlying international relations, the influence of geography, climate, nationalism and imperialism, and the development of international organizations. Summer, Fall. (Kitchin.)

Pol. Sci. 54. Problems of World Politics (3)—Prerequisite, Pol. Sci. 1 or consent of instructor.

The course deals with governmental problems of an international character, such as causes of war, problems of neutrality, propaganda, etc. Students are required to report on readings from current literature. Spring, Fall. (Steinmeyer.)

Pol. Sci. 64. Municipal Government and Administration (3)—Prerequisite, Pol. Sci. 4.

A detailed study of selected problems of municipal government, such as housing, health, zoning, fire and police, recreation and planning. Course includes a visit to Baltimore to observe the agencies of city government at work. Summer, Fall. (Kline.)

Pol. Sci. 71. Political Parties and Public Opinion (3)—Prerequisite, Pol. Sci. 1.

A descriptive and critical examination of the party process in government; nominations and elections, party expenditures, political leadership; the management and conditioning of public opinion. Summer, Fall. (Bone.)

Pol. Sci. 88. Law Enforcement (2)—Prerequisite, Pol. Sci. 1.

A survey of the organization and operation of the agencies involved in the administration of criminal justice, with special reference to the organization and methods of police departments; problems of organized crime and its suppression; the role of the prosecutor and the courts; and the interrelations between these agencies. (Not offered 1942-43.) (Kline.)

For Advanced Undergraduates and Graduates

Pol. Sci. 102. International Law (3)—Prerequisite, Pol. Sci. 1.

A study of the principles governing international intercourse in time of peace and war, as illustrated in texts and cases. Spring, Fall. (Kitchin.)

Pol. Sci. 105. Recent Far Eastern Politics (3)—Prerequisite, Pol. Sci. 1 or consent of instructor.

The background and interpretation of recent political events in the Far East and their influence on world politics. Summer, Fall. (Steinmeyer.)

Pol. Sci. 111. Principles of Public Administration (3)—Prerequisite, Pol. Sci. 4 or consent of instructor.

A functional study of public administration in the United States, with special emphasis upon organization and the relation of administration to the other branches of government. Summer, Fall. (Howard.)

Pol. Sci. 112. Public Personnel Administration (3)—Prerequisite, Pol. Sci. 111 or consent of instructor.

A study of civil service practices in the United States with particular reference to the organization of the personnel agency, the classification and compensation plans, the selection of employees and the management of personnel. Spring, Fall. (Howard.)

Pol. Sci. 114. Public Budgeting (3)—Prerequisite, Pol. Sci. 111 or consent of instructor.

A study of budgetary administration in the United States, including systems of financial control and accountability, the settlement of claims, centralized purchasing and the reporting of financial operations. (Not offered 1942-43.) (Howard.)

Pol. Sci. 117, 118. Government at Work (3, 3)—One lecture and two field trips. Prerequisite, Pol. Sci. 1 and consent of instructor.

This course consists of visits to various administrative agencies of the national government, supplemented by reading assignments on the work of the agencies visited. (Not offered 1942-43.) (Howard.)

Pol. Sci. 123. Government and Business (3)—Prerequisite, Pol. Sci. 1.

A general survey of governmental activities affecting business, with special emphasis upon recent developments; federal and state assistance to, and regulation of, business in their historical and legal aspects; government ownership and operation. Summer, Fall. (Bone.)

Pol. Sci. 124. Legislatures and Legislation (3)—Prerequisite, Pol. Sci. 4.

A comprehensive study of the legislative process, bicameralism, the committee system and the lobby, with special emphasis upon the legislature of Maryland. The course includes a visit to Washington to observe Congress at work. Spring, Fall. (Bone.)

Pol. Sci. 126. Government and Social Security (2)—Prerequisite, Pol. Sci. 4.

An analysis of the Federal Social Security Act with special emphasis upon its background, purposes, administration, and deficiencies. Attention will be given also to employment assurance and relief policies, and to the efforts of European countries and the 48 states to provide a greater measure of security. (Not offered 1942-43.) (Bone.)

Pol. Sci. 131. Constitutional Law (3)—Prerequisite, Pol. Sci. 1.

A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the constitution; the position of the states in the federal system; state and federal powers over interstate and foreign commerce; and the rights of citizens and of accused persons. Summer, Fall. (Kline.)

Pol. Sci. 134. Administrative Law (3)—Prerequisite, Pol. Sci. 1.

A study of the principles involved in the expansion of the discretion of administrative boards and commissions, including an analysis of their functions; their powers over private rights; their procedure in making findings; the enforcement of their rules and orders; and judicial control of their actions. Spring, Fall. (Kline.)

Pol. Sci. 136. Elements of Law (3)—Prerequisite, Pol. Sci. 1.

Development of law and legal systems; comparison of methods and procedure in making and enforcing law in Roman and common law systems; consideration of fundamental legal concepts; contribution and influence of modern schools of legal philosophy in relation to law and government. (Not offered 1942-43.) (Kitchin.)

Pol. Sci. 137. Civilian-Military Relations in the United States (3)—Prerequisite, Pol. Sci. 1.

A consideration of the legal position of the citizen in relation to the military in war time; the status of enemy aliens, and of domestic and alien-enemy property; martial law and military law. The course will include a survey of the legal rights and duties of a state in the international law of war, and the position of neutral and non-belligerent nations. Spring, Fall. (Kitchin.)

Pol. Sci. 141. History of Political Theory (3)—Prerequisite, Pol. Sci. 1 or consent of instructor.

A survey of the principal political theories set forth in the works of writers from Plato to Bentham. Fall. (Leath.)

Pol. Sci. 142. Recent Political Theory (3)—Prerequisite, Pol. Sci. 1 or consent of instructor.

A study of recent political ideas, with special emphasis upon theories of socialism, communism, fascism, etc. Spring. (Leath.)

Pol. Sci. 144. American Political Theory (3)—Prerequisite, Pol. Sci. 1 or consent of instructor.

A study of the writings of the principal American Political theorists from the colonial period to the present. Summer. (Leath.)

Pol. Sci. 174. American Government in Wartime (3)—Prerequisite, Pol. Sci. 1.

An analysis of the problems connected with the national defense program and their impact upon state and local government. Special emphasis is placed upon defense financing, political leadership, control of public opinion, maintenance of morale, government policy toward business, labor, agriculture and the effect of a war economy upon future democratic processes. Summer, Fall. (Bone.)

For Graduates

Pol. Sci. 201 f s. Seminar in International Organization (4).

A study of the forms and functions of various international organizations. Fall, Spring. (Steinmeyer.)

Pol. Sci. 202. British Empire (3).

A study of the constitutional development of the British Dominions, with particular attention to recent inter-imperial relationships. (Not offered 1942-43.) (Steinmeyer.)

Pol. Sci. 211. Seminar in Federal-State Relations (4).

Reports on topics assigned for individual research in the field of recent federal-state relations. (Not offered 1942-43.) (Howard.)

Pol. Sci. 213. Problems of Public Administration (2).

Reports on topics assigned for individual research in the field of national and state administration. Summer, Fall. (Howard.)

Pol. Sci. 214. Problems of Personnel Administration (2).

Reports on topics assigned for individual research in the field of public personnel administration. Spring, Fall.

Pol. Sci. 216. Problems of Government in Metropolitan Regions (2).

Analysis of some metropolitan areas and some of the most pressing problems arising out of the existence of dense populations spread over a large number of small governmental units having similarly inadequate powers and facilities to cope with the problems involved; discussions of possible solutions. (Not offered 1942-43.) (Kline.)

Pol. Sci. 221. Seminar in Public Opinion (2).

Reports on topics assigned for individual research in the field of public opinion. Summer, Fall.

Pol. Sci. 222. Psych. 280. Analysis of Propaganda (3)—Prerequisite, consent of instructors.

Analytical approach to modern propaganda, including study of organizations which employ propaganda, of techniques in actual use in disseminating propaganda, and of attempts at measuring the effects of propaganda. Responsibility for instruction is shared by the Department of Political Science and the Department of Psychology. (Not offered 1942-43.) (Bone, Jenkins.)

Pol. Sci. 235. Problems in Public Law (2).

Readings and reports on topics selected with reference to the needs of the individual student; special attention will be given to methods of research in legal materials and to problems in interstate commerce, police power, due process and equal protection. (Not offered 1942-43.) (Kline.)

Pol. Sci. 251. Bibliography of Political Science (2).

This course is intended to acquaint the student with the literature of the various fields of political science and to instruct him in the use of government documents. Spring, Fall. (Staff.)

Pol. Sci. 261. Research in Political Science (2, 4)—Credit according to work accomplished. Summer, Fall, Spring. (Staff.)

POULTRY HUSBANDRY

PROFESSORS JULL; ASSOCIATE PROFESSORS GWIN, BIRD, PHILLIPS, QUIGLEY.

P. H. 1. Poultry Production (3)—Two lectures; one laboratory.

This is a general course designed to acquaint the student with modern methods of poultry husbandry. Study of breeds, breed selection, modern breeding theory and methods, housing, and principles of incubation are discussed. Summer, Fall. (Quigley.)

P. H. 2. Poultry Management (3)—Two lectures; one laboratory.

Material will be presented in this course to acquaint the student with modern methods of feeding, brooding, caponizing, pullet rearing, broiler production, sanitation, management for egg production, and marketing of poultry products. Spring, Fall. (Quigley.)

For Advanced Undergraduates

P. H. 50. Poultry Biology (2)—One lecture; one laboratory. Prerequisites, P. H. 1, or equivalent.

The elementary anatomy of the fowl, selection for eggs and meat production, and for breed standards are studied. Judging teams for intercollegiate competitions are selected from members of this class. Summer, Fall. (Jull.)

P. H. 51. Poultry Genetics (3)—Prerequisites, P. H. 1 or 50, Zool. 104.

The inheritance of morphological and physiological characters of poultry are presented. Inheritance of factors related to egg and meat production and quality are stressed. Summer, Spring. (Jull.)

P. H. 52. Poultry Nutrition (2)—One laboratory; one lecture, demonstration and quiz period.

The nutritive requirements of poultry and the nutrients which meet those requirements are presented. Feed cost of poultry production is emphasized. Summer, Fall. (Bird.)

Poultry Hygiene, see Veterinary Science, V. S. 57.

P. H. 56. Poultry Physiology (2)—One lecture; one laboratory. Prerequisite, P. H. 1.

The physiology of development and incubation of the embryo, especially physiological pathology of the embryo in relation to hatchability, is presented. Physiology of growth and the influence of environmental factors on growth and development are considered. Summer, Spring. (Phillips.)

P. H. 58. Commercial Poultry Management (2)—Two lectures, discussion, demonstration, and quiz periods. Prerequisite, ten hours of poultry husbandry, including P. H. 1, 2.

A symposium on finance, investment, plant layout, specialization, purchase of supplies, management problems in baby chick, egg, broiler, and turkey production, foremanship, advertising, selling, by-products, production and financial records. Prior to this course the student should have practical experience with poultry at home, on a commercial poultry farm, or under the supervision of the poultry department. Spring. (Quigley.)

For Advanced Undergraduates and Graduates

P. H. 104. Poultry Marketing Problems (2).

Live and dressed poultry grades, live and dressed poultry marketing channels, relation of transportation and distribution to quality, methods and costs of marketing live and dressed poultry, dressing, drawing, eviscerating and preparing poultry for the table. Fall. (Gwin.)

P. H. 105. Egg Marketing Problems (2).

Exterior and interior egg quality factors, wholesale and retail grades of eggs, egg marketing channels, relation of transportation and distribution to quality, methods and costs of marketing eggs, candling and preparing eggs for the table. Spring. (Gwin.)

Avian Anatomy, see Veterinary Science, V. S. 108.

Preservation of Poultry Products, see Bacteriology, F. Tech. 108.

P. H. 107. Poultry Industrial and Economic Problems (2).

This course presents the relation of poultry to agriculture as a whole and its economic importance. Consumer prejudices and preferences, production, transportation, storage, and distribution problems are discussed. Trends in the industry, surpluses and their utilization, poultry by-products, and disease problems, are presented. Summer, Fall. (Staff.)

For Graduates

P. H. 201. Advanced Poultry Genetics (3)—Prerequisite, P. H. 51 or equivalent.

This course serves as a foundation for research in poultry genetics. Linkage, crossing-over, inheritance of sex, the expression of genes in development, inheritance of resistance to disease, and the influence of the environment on the expression of genetic capacities are considered. Spring, Summer. (Jull.)

P. H. 202. Advanced Poultry Nutrition (3)—Two lectures; one laboratory. Prerequisite, P. H. 52 or equivalent.

Deficiency diseases of poultry are considered intensively. Vitamin, mineral, and protein deficiencies are given special consideration. Synthetic diets, metabolism, and the physiology of digestion, growth curves and their significance, and feed efficiency in growth and egg production are studied. Spring. (Bird.)

P. H. 203. Physiology of Reproduction of Poultry (3)—Two lectures; one laboratory. Prerequisite, P. H. 56 or its equivalent.

The role of the endocrines in reproduction, especially with respect to egg production, is considered. Fertility, sexual maturity, broodiness, molting, egg formation, ovulation, deposition of egg envelopes, and the physiology of oviposition are studied. Fall. (Phillips.)

P. H. 204. Seminar (1).

Reports of current researches by staff members, graduate students, and guest speakers are presented. Fall, Spring. (Staff.)

P. H. 205 f s. Poultry Literature (1-4).

Readings on individual topics are assigned. Oral and written reports required. Methods of analysis and presentation of scientific material are taught. Summer, Fall, Spring. (Staff.)

P. H. 206 f s. Research—Credit in accordance with work done.

Practical and fundamental research with poultry may be conducted under the supervision of staff members toward the requirements for the degrees of M. S. and Ph. D. Summer, Fall, Spring. (Staff.)

PSYCHOLOGY

PROFESSORS JENKINS*, SPROWLS; ASSOCIATE PROFESSOR BELLOWS*;
ASSISTANT PROFESSOR CLARK; DR. MACMILLAN, DR. HACKMAN,
MRS. THURSTON.

Psychological Testing Bureau. The staff of the Department of Psychology maintains a bureau of vocational and educational guidance on the basis of adequately standardized psychological tests. The services of the bureau are available without charge to students.

*On leave of absence for military service.

Psych. 1. Introduction to Psychology (3).—Prerequisite, sophomore standing.

A general introduction to typical problems upon which psychologists are at work. Review of experimental investigations of the more fundamental phases of human behavior. Summer, Fall, Spring.

Psych. 2. Applied Psychology (3).—Prerequisite, sophomore standing.

A general introduction to the application of psychology in practical life situations. Includes a consideration of the psychological problems in personal efficiency, in vocational orientation, in war morale, in public speaking, and in the professions. Fall.

Psych. 3. Applied Psychology (3).—Prerequisite, Psych. 1.

Application of controlled observation to practical psychological problems in business and industry, including industrial selection, methods of production, advertising, selling, and market research. Spring.

Psych. 4. Psychology for Student of Commerce (3).—Open only to students in economics or business administration.

Topics in applied psychology which relate to practical problems in business and industry viewed from the standpoint of controlled observation. Fall.

For Advanced Undergraduates

Psych. 55. Educational Psychology (3).—Required of students of College of Education.

Experimental studies of basic psychological problems encountered in education; measurements and significance of individual differences, learning, motivation, transfer of training, etc. Summer, Fall, Spring.

(Sprowls.)

For Advanced Undergraduates and Graduates

Psych. 110. Advanced Educational Psychology (3).—Prerequisite, Psych. 55.

More advanced treatment of the solution of basic psychological problems in education by methods of controlled observation. (Not offered 1942-43.) (Sprowls.)

Psych. 115. Detection and Treatment of Defects in Reading (3).—Prerequisites, Psych. 1 and permission of the instructor.

A survey of the psychological problems involved in the discovery and treatment of reading defects at the college level. Summer. (Macmillan.)

Psych. 120. Psychology of Individual Differences (3).—Prerequisite, Psych. 1 or 55.

The occurrence, nature and causes of psychological differences; and their importance in education, business, and industry. Fall. (Macmillan.)

Psych. 121. Social Psychology (3).—Prerequisite, Psych. 1.

A psychological study of human behavior in social situations; experimental studies of the influence of other persons, of social conflicts and individual adjustment, of the psychology of social institutions and of current social movements. Summer, Spring. (Clark.)

Psych. 125. Child Psychology (3).—Prerequisite, Psych. 1 or 55.

Experimental analysis of child behavior; motor intellectual, and emotional development, social behavior, parent-child relationships, and problems of the growing personality. (Not offered 1942-43.) (Clark.)

Psych. 130. Mental Hygiene (3).—Two lectures; one clinic. Prerequisite, Psych. 1 or 55.

The more common deviations of personality; typical methods of adjustment. Summer, Fall, Spring. (Sprowls.)

Psych. 131. Abnormal Psychology (3).—Two lectures; one clinic. Prerequisite, Psych. 130.

The nature, occurrence, and causes of psychological abnormality with emphasis on the clinical rather than theoretical aspects. Spring. (Sprowls.)

Psych. 140. Psychological Problems in Market Research (3).—Prerequisite, Psych. 3 or permission of instructor.

Use of methods of controlled observation in determining public reactions to merchandise, and in measuring the psychological influences at work in particular markets. (Not offered 1942-43.) (Jenkins.)

Psych. 141. Psychology in Advertising and Selling (3).—Prerequisite, Psych. 3.

Experimental and statistical studies of psychological aspects of advertising; methods of measuring the effectiveness of advertising; the role of such factors as attention, memory, belief, etc.; problems associated with specific advertising media. Spring. (Hackman.)

Psych. 150. Psychological Tests and Measurements (3).—Two lectures; one laboratory. Prerequisite, Psych. 120 or permission of instructor.

Critical survey of psychological tests used in vocational orientation and in industry with emphasis on methods by which such tests are validated; practice in the use of tests and the interpretation of test data. Summer, Spring. (Macmillan.)

Psych. 155. Vocational Orientation (3).—Prerequisite, Psych. 150 or equivalent.

Psychological methods and results for occupational classification, and for worker selection, classification, and individual orientation. Spring. (Macmillan.)

Psych. 160. Industrial Psychology (3)—Prerequisite, Psych. 3 or permission of instructor.

Controlled observation applied to psychological problems in industrial production, including psychological effects of conditions and methods of work. (Not offered 1942-43.) (Hackman.)

Psych. 161. Personnel (3)—Prerequisite, Psych. 3 or permission of instructor.

Psychological problems involved in the management of personnel in modern business and industry, and in military organization. A consideration of personnel selection, classification, measures of ability, methods of developing and maintaining personnel efficiency and morale. Summer, Fall. (Clark.)

Psych. 162. Advanced Personnel Psychology (3)—Prerequisite, Psych. 161.

A continuation of Personnel (Psych. 161) with special emphasis on the psychological problems of motivation and morale in industrial organizations and in organized military service. Spring. (Clark.)

Psych. 165. Psychological Problems in Aviation (3)—Prerequisite, Psych. 120 or permission of instructor.

Study of researches dealing with human response in conditions met during flight. Selection and classification of flight personnel. Effects of high altitudes and accelerations. Effects of noise, fatigue, and other conditions. Problems of tension and emotion. (Not offered 1942-43.) (Jenkins.)

Psych. 170. Legal Psychology (3)—Prerequisite, Psych. 121 or permission of instructor.

Interpretation of researches pertaining to accuracy of observation and of testimony, psychological aids in determination of guilt and treatment of the offender. (Not offered 1942-43.) (Sprowls.)

Psych. 190. Techniques of Investigation in Psychology (3)—Three periods of practice and discussion. Prerequisite, Psych. 3.

A consideration of quantitative methods in psychology, the design of experiments, and actual practice in various methods of obtaining data and in treating these results for interpretation. Summer, Fall, Spring. (Macmillan.)

Psych. 195. Minor Problems in Psychotechnology (2-3)—Credit apportioned to work accomplished. Prerequisite, major senior standing and consent of department head. (May not be offered for credit toward graduate degrees.)

Conduct of original research under the supervision of some member of the staff. Satisfactory completion of this project may lead to publication in one of the standard psychological journals. Summer, Fall, Spring. (Staff.)

For Graduates

Psych. 200. Research in Psychotechnology (4-6)—Credit apportioned to work accomplished. (Not offered 1942-43.) (Staff.)

Psych. 210. Seminar in Educational Psychology (6)—An advanced course for teachers and prospective teachers.

Systematic approach to advanced problems in educational psychology based upon specific experimental contributions. Fall, Spring. (Sprowls.)

Psych. 240. Seminar in Current Psychotechnological Problems (6)—An advanced course for students pursuing major graduate studies.

A systematic analysis of recent contributions in selected psychotechnological fields. (Not offered 1942-43.) (Jenkins.)

Psych. 245. Advanced Psychological Problems in Market Research (3).

Graduate study of the specialized problems and techniques employed by the psychologist in market research. The course will attempt to combine systematic theory with actual practice in dealing with these research problems. (Not offered 1942-43.) (Jenkins.)

Psych. 250. Participation in Testing Clinic (4-6)—Credit apportioned to work accomplished.

Actual practice in the administration of tests of aptitude, interest, and achievement and interpretation of test data in the course of routine operation of the testing bureau. Summer, Fall, Spring. (Macmillan.)

Psych. 251. Development and Validation of Psychological Tests (3)—Prerequisite, Psych. 150.

Methods for evaluating criteria and for the analysis and combination of test and predictor items. (Not offered 1942-43.) (Bellows.)

Psych. 255. Occupational Psychology (3)—Prerequisite, consent of instructor.

Experimental development and use of the vocational counseling interview, aptitude tests, and related techniques for the occupational orientation of youth. (Not offered 1942-43.) (Bellows.)

Psych. 280. Pol. Sci. 222 Analysis of Propaganda (3)—Same as Pol. Sci. 222. (Bone, Jenkins.)

Psych. 290. Problems of Experimental Design in Psychology (3)—Prerequisite, consent of instructor.

Application of advanced research techniques to specific fields in psychotechnology with actual practice in their use. (Not offered 1942-43.) (Hackman.)

SOCIOLOGY

PROFESSOR JOSLYN; ASSOCIATE PROFESSORS HOLT, MILLS;
ASSISTANT PROFESSORS DODSON, LEJINS; MR. FORM, MR. KUJAWSKI.

Soc. 1. Contemporary Social Problems (3).

This course attempts to develop a method of thinking about modern societies. Through background and analysis it offers an orientation to current social issues; isolates some major tendencies in present day social structure; and traces their import for types of human nature and for several problems faced by democratic societies in crises and during periods of reorganization. Fall, Spring.

Soc. 3. Introduction to Sociology (3)—Open to freshmen with consent of instructor.

An analysis of society and of basic social processes; characteristics of collective behavior; typical social organizations; the role of culture in the development of personality; social products; social interaction; social change. Summer, Spring.

Soc. 5. Comparative Sociology (3).

Comparative analyses of primitive and civilized societies. World distribution of culture. Ethnology of peoples of the South Seas, China, Africa, and India. Significance of findings for the generic study of man. Spring.

For Advanced Undergraduates

Soc. 51. Post-War Problems of Social Organization (3)—Prerequisite, consent of instructor.

A study of organizational changes in basic social institutions required for successful adjustment to conditions likely to prevail at the close of the present war. Summer, Spring. (Joslyn.)

Soc. 52. Community Organization (3)—Prerequisite, Soc. 3 or consent of instructor.

An analysis of the community and its component social groups; ecological basis of the community; determination of the boundaries of communities and neighborhoods; characteristics of rural and urban communities; social institutions of the community; social change and the community; the structure and functions of special interest groups; the community council. Fall. (Dodson.)

Soc. 61. Marriage and the Family (3)—Prerequisite, Soc. 3 or consent of instructor.

The family as an institution. Variations of the family in time and space. The family in modern western society, with particular reference to the American family. Mate selection and courtship. Marriage. Member roles, relationships, and personality. Family disorganization, conflicts, divorce, and desertion. The family and social change. Fall. (Lejins.)

SOCIOLOGY

Soc. 71. Social Pathology (3)—Two lectures; one field trip. Prerequisite, Soc. 3 or consent of instructor.

A study of maladjustments which represent deviations from generally accepted social norms. Problems to be covered will include poverty, unemployment, family disorganization, crime, and international war. Summer, Spring. (Joslyn.)

Soc. 72. Criminology (3)—Prerequisite, Soc. 3 or consent of instructor.

The concept of criminal behavior. Statistical and case study approaches to the phenomena of crime. Etiology of crime: a historical survey of theories attempting a causative explanation of criminal behavior and some prevalent hypotheses. Types and classifications of criminal acts and offenders. Scientific methods of correction. Prevention of crime. Summer, Spring. (Lejins.)

Soc. 73. Juvenile Delinquency (3)—Prerequisite, Soc. 72 or consent of instructor.

Juvenile delinquency in relation to the general problem of crime. Analysis of factors responsible for juvenile delinquency. Prevention and treatment: probation, juvenile courts, correctional institutions, community programs, and public school programs. Fall. (Lejins.)

Soc. 81. Introduction to Social Work (3)—Two lectures; one field trip. Prerequisite, Soc. 71 or consent of instructor.

The theory of social work; social case work, generic and specific; procedure and techniques in social case work; principles of social diagnosis; present day types of social work; administration of public and private welfare agencies. Fall. (Joslyn.)

For Advanced Undergraduates and Graduates

Soc. 101. Social Stratification (3)—Prerequisite, Soc. 3 or consent of instructor.

Deals with classes, status groups, caste systems, slavery, various types of elites, and vertical mobility. Fashion and styles. Presents a theory of stratification, social movements, symbol manipulations, and hierarchies of power. Traces their import for personal and official roles, and for the distribution of prestige. Fall. (Mills.)

Soc. 103. Rural Sociology (3).

The structure and functions of rural communities; the evolution of rural culture; rural institutions and their problems; the psychology of rural life; composition and characteristics of the rural population; relation of rural life to the major social processes; the social aspects of rural planning. Summer, Spring. (Holt.)

Soc. 104. Urban Sociology (3).

The origin and growth of cities; composition and characteristics of city populations; the social ecology of the city; social relationships and groupings in the city; the organization of urban activities; social problems of the city; the planning and control of urban development. Fall. (Holt.)

Soc. 105. Population Problems (3)—Prerequisite, Soc. 3 or consent of instructor.

Population growth in the United States; contemporary trends in fertility and mortality; differential fertility and mortality; changes in the composition of our population and their significance; population migration in modern times; qualitative problems of population; theories of population growth and decline. Spring. (Holt.)

Soc. 106. Regional Sociology (3)—Prerequisite, Soc. 3 or consent of instructor.

The meaning and implications of regionalism; differentiation of regions; types of regions in the United States; problems peculiar to these regions; metropolitan, cultural, and administrative regions; the impact of regionalism on social institutions; regional planning with emphasis on post-war planning. Summer, Spring. (Dodson.)

Soc. 107. Ethnic Minority Groups (3)—Prerequisite, Soc. 3 or consent of instructor.

Basic processes in the relations of ethnic groups. Immigrant groups in the United States; their cultural background; the causes of their migration; their adjustment to the new situation. The Negro in the United States. Ethnic minorities in Europe and the problems they present. A discussion of proposals for the solution of these problems in the light of past experiences and desiderata for the future. Summer, Spring. (Lejins.)

Soc. 110. Sociology of the Professions (3)—Prerequisite, Soc. 3 or consent of instructor.

Structure and function of divisions of labor; their relations to technology; shifting occupational compositions of modern industrial societies; the positions of selected professions in the social, economic, and political orders; the concept of career; the distribution of skills in American society. Effects of occupations on personality. Occupational ideologies and organizations; professional associations and ethics. Spring. (Mills.)

Soc. 125. Sociology of War (3).

The concept and typologies of war. Hypotheses concerning factors operative in bringing about wars. The influence of war on society. The military class: its role in war and its influence on social structure and processes. Technology and war. The modern concept of total war. Summer, Spring. (Lejins.)

Soc. 130. Recent Social Thought (3)—Prerequisite, Soc. 3 or consent of instructor. Required of all sociology majors.

A general survey and critical study of leading schools of sociological thought. Fall. (Mills.)

Soc. 135. Sociology of Law (3)—Prerequisite, Soc. 3 or consent of instructor.

Law as a form of social control. Interrelation between legal and other conduct norms as to their content, sanctions, and methods of security conformity. Law as an integral part of the culture of the group. Factors and processes operative in the formation of legal norms: an analysis of some historical data and of more typical and important situations in modern western society. Legal norms as determinants of human behavior. Fall. (Lejins.)

Soc. 136. Sociology of Religion (3)—Prerequisite, Soc. 3 or consent of instructor.

Varieties and sources of religious experience. Religious institutions and the role of religion in social life. Fall. (Holt.)

Soc. 140. Design of Investigation in Sociology (3)—Prerequisite, Soc. 3. Required of all sociology majors.

A critical study of the rationale, both implicit and explicit, underlying the concepts, procedure, and methods employed by a number of outstanding sociological investigations. Fall. (Joslyn.)

Soc. 141. Techniques of Investigation in Sociology (3)—Three periods of practice and discussion. Prerequisite, Soc. 3. Required of all sociology majors.

A study of quantitative methods in sociology and actual practice in various methods of obtaining, analyzing, and interpreting data. Summer, Spring. (Holt.)

Soc. 150. Field Practice in Social Work (3)—Prerequisite, Soc. 81 or consent of instructor. Enrollment restricted to available opportunities.

Supervised field work of various types undertaken during the summer months and suited to the needs of the individual student. Summer, Fall, Spring. (Joslyn.)

For Graduates**Soc. 200. Seminar in Methodology (3)—Required of all graduate students in sociology.**

A study of fundamental methodological problems in sociology. Among the subjects to be considered will be language problems in scientific discourse; operational concepts in sociology; the postulates, procedures, and methods of science; the uses and limitations of quantitative methods; the sociology of knowledge; controversial issues in sociology; techniques of investigation. Fall. (Staff.)

Soc. 201. Seminar in Systematic Sociology (3).

A study of the structure of social action systems in relation to the structural requirements of the means-end fields in which these systems operate. Summer, Spring. (Joslyn.)

Soc. 202. Sociological Theory (3).

An examination of the works of European and American theorists. Special attention will be given to Max Weber, Simmel, Horney, Mannheim, Tönnies, Lasswell, Durkheim, and G. H. Mead. Fall. (Mills.)

Soc. 203. Sociology of Knowledge (3).

Social bases of ideologies and mentalities; a sociological theory of language, mind, and types of intellectual change. Bias and objectivity. Positions of intellectual, technical, and literary elites; periodicals and their publics. Thought and action; social conditions of constraint and freedom of thought. The place of science in western civilization. Studies of selected ideologies. Spring. (Mills.)

Soc. 204. Social Organization (3).

An intensive study of selected problems pertaining to the structure and organization of basic social institutions. Spring. (Joslyn.)

Soc. 205. Community Organization (3).

Criteria of community organization and disorganization; variables in community organization and their conditioning factors; special problems in the organization of rural, village, suburban, and urban communities; community stability and instability; the lay and professional leader in the community. Classroom and field studies will be made of the composition, structure, and functioning of selected communities. Fall. (Dodson.)

Soc. 206. Comparative Sociology (3).

Studies in the social formation and selection of types of personality in the frameworks of primitive and historical societies as compared with contemporary American society. Fall. (Mills.)

Soc. 207. Rural-Urban Sociology (3).

A study of the differences between rural and urban societies with reference to composition of population, social mobility, social relationships, differentiation of social groups, standards of living, mores and attitudes, and various pathological conditions. Spring. (Holt.)

Soc. 210. Special Problems of Population (3).

An intensive study of selected problems in the fields of population growth, fertility and mortality, population composition, and population migration. Fall. (Holt.)

Soc. 211. Advanced Regional Sociology (3).

A comparative analysis of regional trends in the United States and various foreign countries. Topics to be covered will include the meanings and implications of regionalism; origins of regionalism; demarcation of regions in the United States on the basis of geographic, economic, demographic, political, and cultural criteria; characteristics and problems peculiar to each region; the role of local, state, and national administrative units in regional planning and development. Spring. (Dodson.)

Soc. 215. Seminar in Sociology of the Professions (3).

Advanced and more detailed consideration of topics dealt with Soc. 101 and Soc. 110 with emphasis upon theoretical relevance, available materials, and designs of research projects. Spring. (Mills.)

Soc. 216. Sociology of the Family (3).

A study of selected recent researches in the sociology of the family. Summer, Spring. (Lejins.)

Soc. 217. Seminar in the Sociology of Law (3).

An intensive study of factors and processes operative in the formation of law. Fall. (Lejins.)

Soc. 218. Sociological Problems of Leadership (3).

An analysis of the leader-follower relationship; leadership defined; factors conditioning the leadership situation; leadership as a function of the group; the leader as an instrument of social control; methods of developing group support; the professional and lay leader; functions of the leader; types of leaders; morale as a function of leadership. Summer, Spring. (Dodson.)

Soc. 221. Advanced Criminology (3).

An intensive study of selected problems in criminological research. Fall. (Lejins.)

Soc. 222. Recent Criminological Theories (3).

A survey of recent developments in the field of theoretical criminology, with a view to providing a deeper insight into the complex of problems facing the modern criminologist. Summer, Spring. (Lejins.)

Soc. 223. Juvenile Delinquency (3).

Theories of juvenile delinquency. Methods of treatment of juvenile delinquents, with particular reference to the United States. An intensive study will be undertaken of one or more selected problems in the field. Fall. (Lejins.)

Soc. 250. Research in Sociology—Credit apportioned to work accomplished.

Individual research projects involving either field work or analysis of compiled data. Summer, Fall, Spring. (Staff.)

SPEECH

PROFESSOR EHRENSBERGER; ASSISTANT PROFESSORS PROVENSEN, STRAUSBAUGH; MR. HUTCHESON, MR. WIKSELL, MR. FOSTER, MR. DUPLER, MISS JACKSON.

Speech 1 f s. Public Speaking (2)—Required of all students. Prerequisite for advanced speech courses.

The preparation and delivery of short original speeches; impromptu speaking; reference readings; short reports; etc. Speech clinic open to students. Summer, Fall, Spring.

Speech Clinic—No credit.

Speech examinations; training in speech and voice; remedial work in minor speech difficulties. The work of the clinic is conducted in individual conferences and in small group meetings. Hours are arranged by consultation with the respective speech instructors. Summer, Fall, Spring.

Speech 2. Fundamentals of Speech (3).

Studies in the bases and mechanics of speech. This course does not deal with public speaking exclusively; it is concerned with the whole speech function in private as well as public manifestations. It is given primarily for students who expect to do extensive work in speech. Any student electing this course may take it concurrently with or after completing Speech 1 f s. Summer, Fall, Spring.

Speech 3. Voice and Diction (3)—For students in the College of Education.

This course is designed to provide the student with an opportunity to improve his articulation and phonation. Study and demonstration of speech sound production, physics of sound, attributes of voice, the breathing mechanism, the larynx and ear are combined with intensive drills in articulation and voice production. Summer, Fall, Spring.

Speech 4 f s. Advanced Public Speaking (4)—For students in the College of Commerce and in the general curriculums of the College of Agriculture. Advanced work on basis of Speech 1 f s, with special applications and adaptations. At each session of the class a special setting is given for the speeches—civil, social, and political organizations, etc., and organizations in the fields of the prospective vocations of the different students. Summer, Fall, Spring.

Speech 5. Oral Technical English (2)—For sophomore engineering students. Limited to engineering students.

The preparation and delivery of speeches, reports, etc., on both technical and general subjects. Summer, Fall, Spring.

Speech 6. Advanced Oral Technical English (2)—For junior engineering students. Limited to engineering students.

This course is a continuation of Speech 5. Special emphasis upon engineering projects that fall within student's own experience. Class discussion and criticism of all speeches and reports. Summer, Fall, Spring.

SPEECH

Speech 7 f s. Advanced Oral Technical English (2)—Senior seminar. For senior engineering students only.

Advanced work on the basis of Speech 6. Work not confined to classroom. Students are encouraged to deliver addresses before different bodies in the university and elsewhere. Summer, Fall, Spring.

Speech 8 f s. Group Discussion (2).

The theory and practice of the panel, round-table, symposium, and other methods of group discussion. Summer, Fall, Spring.

Speech 9 f s. Debate (4).

This course stresses not formal debating, but forms of persuasion which will be useful in business and professional life. It deals, to a great extent, with ways in which human beliefs and behavior may be influenced by logical discussion. Summer, Fall, Spring.

Speech 10. Oral Reading (3).

A study of the technique of vocal expression. The oral interpretation of literature. The practical training of students in the art of reading. Summer, Fall, Spring.

Speech 11. Stagecraft (3)—Two lectures; one laboratory. Prerequisite, consent of instructor. Open to sophomores.

Planning and construction of stage settings, costumes, properties. Practice in the stagecraft shop and on stage in performance. Fall.

Speech 12. Stagecraft (3)—Two lectures; one laboratory. Prerequisite, Speech 11.

Stage design and lighting. Spring.

For Advanced Undergraduates and Graduate Students

Speech 101. Introduction to Radio (3)—Two lectures; one laboratory. Admission by audition or consent of instructor.

A lecture and laboratory course dealing with the various aspects of present-day broadcasting. Extensive practice in microphone speaking. Laboratory fee, \$2.00. Summer, Fall, Spring. (Ehrensberger.)

Speech 102. Radio Program Production (3)—Laboratory Course. Prerequisite, Speech 101 or consent of instructor.

The preparation and production of radio dramatizations and other types of programs. Laboratory fee, \$2.00. Spring. (Ehrensberger.)

Speech 103 f s. Speech Composition (6)—Not allowed for graduate credit except in English and Education.

A study of rhetorical principles and models of speech composition in conjunction with the preparation and presentation of both general and specific forms of public address. Students electing this course cannot receive credit for Speech 4. Fall, Spring. (Ehrensberger.)

Speech 104. Speech Pathology (3).

The aim of this course is to familiarize the student with causes, nature, symptoms, and treatment of common types of speech disorders. Fall.
(Hutcheson.)

Speech 105. Speech Clinic (3)—Two lectures; one laboratory. Prerequisite, Speech 104.

A course dealing with the various methods in correction. Actual work in clinic with cases. Library research and detailed reports required. Spring.
(Hutcheson.)

Speech 106. Advanced Oral Reading (3)—Prerequisite Speech 10.

Emphasis upon the longer reading and a more critical and detailed study of literature suitable for oral interpretation. Program planning. Fall, Spring.
(Provensen.)

Speech 107 s. Teacher Problems in Speech (3).

A practical course dealing with the improvement of voice and the treatment of minor speech defects. The course is designed to meet the every-day speech problems that confront the teacher. There will be a demonstration and practice clinic. Summer.
(Hutcheson.)

VETERINARY SCIENCE

PROFESSORS WELSH, BRUECKNER; ASSOCIATE PROFESSORS CRAWFORD, DEVOLT;
ASSISTANT PROFESSOR DAVIS.

For Advanced Undergraduates and Graduates**V. S. 101. Comparative Anatomy and Physiology (3).**

Structure of the animal body; abnormal as contrasted with normal; inter-relationship between the various organs and parts as to structure and function; comparative study of herbivora, carnivora, and omnivora. Summer, Fall.
(Crawford.)

V. S. 102. Animal Hygiene (3)—Prerequisite, V. S. 101.

Care and management of domestic animals, with special reference to maintenance of health and resistance to disease; prevention and early recognition of abnormal conditions; general hygiene; sanitation; infections; epizootics; enzootics; internal and external parasites; first aid. Fall, Spring.
(Crawford.)

V. S. 103. Hematology (2)—Two laboratories.

Physiologic, pathologic, and diagnostic significance of changes in blood; taking samples; estimating the amount of hemoglobin; color index; numerical count of erythrocytes and leucocytes; study of red cells, and leucocytes in fresh and fixed stained preparations; differential count of leucocytes; vital staining; sources and development of the formed elements of blood; pathological forms and counts. Fall.
(Welsh.)

V. S. 104. Urinalysis (2)—Two laboratories. Bact. 1 desirable.

Physiologic, pathologic, and diagnostic significance of kidney excretions, use of clinical methods including microscopic examination for casts, cells, blood, parasites, bacteria, and interpretation of results. Spring.
(Brueckner.)

V. S. 105. Pathological Technic (3)—Three laboratories. Bact. 1 desirable.

Examination of fresh material; fixation; decalcification; sectioning by free hand and freezing methods; celloidin and paraffin embedding and sectioning; general staining methods. Fall.
(Brueckner.)

V. S. 106. Pathological Technic (continued) (2-5)—Laboratory course. Prerequisite, consent of instructor.

Special methods in pathological investigations and laboratory procedures as applied to clinical diagnosis. Spring.
(Brueckner.)

V. S. 107. Poultry Hygiene (3)—Two lectures; one laboratory period. Prerequisites, Bact. 1, P. H. 106 f.

Study of causes, symptoms, dissemination, life cycle, seasonal appearance, methods of control and eradication of various virus, bacterial and protozoan diseases of poultry including internal and external parasites. The lectures are supplemented by laboratory demonstrations. Spring.
(DeVOLT.)

V. S. 108. Avian Anatomy (3)—Two lectures; one laboratory period. Prerequisite, Zool. 1 s.

A study of the gross and microscopic structure of the body of the domestic fowl. The lectures include references to physiological processes. The laboratory provides for a study of systematic anatomy by dissection work combined with demonstrations. The course is designed to meet the needs of the student in poultry husbandry. Fall.
(DeVOLT.)

For Graduates

V. S. 201. Animal Disease Problems (2-6)—Credit according to work done. Prerequisite, degree in veterinary medicine from an approved veterinary college or consent of instructor. Laboratory and field work by assignment. Summer, Fall, Spring.
(Welsh.)

V. S. 202. Animal Disease Research (2-6)—Credit according to work done. Prerequisite, degree in veterinary medicine from an approved veterinary college or consent of instructor. Summer, Fall, Spring.
(Staff.)

ZOOLOGY

PROFESSOR TRUITT; ASSOCIATE PROFESSOR PHILLIPS; ASSISTANT PROFESSORS BURHOE, HARD, TRESSLER; MR. CLARKE, MR. CRONIN, MR. FILIPPI, MR. REYNOLDS, MR. WINBURY, MISS MCCUTCHEON, MR. PINESS.

Zool. 1. General Zoology (4)—Two lectures; two laboratories.

An introductory course, which is cultural and practical in its aim. It deals with the basic principles of animal development, structural relationships, and activities, a knowledge of which is valuable in developing an appreciation of the biological sciences. Typical invertebrates and a mammalian form are studied. Laboratory fee, \$5.00. Summer, Fall, Spring.

Zool. 2 f s. Fundamentals of Zoology (8)—Two lectures; two laboratories.

A thorough study of the anatomy, classification, and life history of representative animals. During the first semester, emphasis is placed on invertebrate forms and during the second semester upon vertebrate forms including the frog.

This course satisfies the freshman premedical requirements in general biology. Freshmen who intend to choose zoology as a major should register for this course. Either semester may be taken first. Both semesters must be completed before credit is granted. Laboratory fee, \$5.00 per semester. Summer, Fall; Spring, Summer.

Zool. 3. Introductory Zoology (3)—Two lectures; one demonstration.

A course for students desiring a general knowledge of the principles underlying the growth, development, and behavior of animals, including man. Laboratory fee, \$3.00. Fall.

Zool. 4. Comparative Vertebrate Morphology (3)—One lecture; two laboratories. Prerequisite, one course in zoology.

A comparative study of selected organ systems in certain vertebrate groups. Required of students whose major is zoology, and of premedical students. Laboratory fee, \$5.00. Summer, Spring.

Zool. 5. Economic Zoology (2)—Prerequisite, one course in zoology.

The content of this course centers around the problems of preservation, conservation, control, and development of economic wild life, with special reference to Maryland. The lectures are supplemented by assigned readings and reports.

Combined with Zool. 6, this course should form a part of the basic training for professional foresters, game proctors, and conservationists. Spring.

Zool. 6. Field Zoology (3)—One lecture; two laboratories. Prerequisites, one course in zoology and one in botany.

This course consists in collecting and studying both land and aquatic forms of nearby woods, fields, and streams, with emphasis on the higher

invertebrates and certain vertebrates, their breeding habits, environment, and modes of living. Intended for teachers of biology, and also for those who have a special interest in nature study and outdoor life. Spring.

Zool. 8. Invertebrate Morphology (4)—Two lectures; two laboratories. Required of students whose major is zoology.

This course consists in a study of the structure and relationships of selected invertebrate groups. Laboratory fee, \$5.00. Summer, Spring.

Zool. 12. Histological Technique (3)—One lecture; two laboratories. Registration is limited and the permission of the instructor must be obtained before registration.

The preparation of animal tissues for microscopical examination. The course is designed to qualify the student in the preparation of tissues and blood for normal and pathological study. Laboratory fee, \$5.00. Summer, Spring. (Hard.)

Zool. 15 f s. Human Anatomy and Physiology (8)—Two lectures; two laboratories. Prerequisite, one course in zoology. Required of students whose major is physical education, and of those preparing to teach general science or biology. Either semester may be taken first. Both semesters must be completed before credit is granted.

For students who desire a general knowledge of human anatomy and physiology. Emphasis is placed upon the physiology of digestion, circulation, respiration, and reproduction. Laboratory fee, \$5.00 per semester. Summer, Fall; Spring, Summer.

Zool. 16. Human Physiology (3)—Two lectures; one laboratory. Not open to freshmen.

An elementary course in physiology. Laboratory fee, \$5.00. Summer, Spring.

Zool. 20. Vertebrate Embryology (3)—One lecture; two laboratories. Prerequisite, one course in zoology. Required of students whose major is zoology and of premedical students.

The development of the chick to the end of the fourth day and early mammalian embryology. Laboratory fee, \$5.00. Fall.

For Advanced Undergraduates

Zool. 53. Physiology of Exercise (2).

A detailed consideration of the mechanism of muscular contraction; the metabolic, circulatory, and the respiratory responses in exercise; and their integration by means of the nervous system. Required of all juniors in Physical Education. Fall. (Phillips.)

Zool. 55. Development of the Human Body (2).

A study of the main factors affecting the growth and development of the child with especial emphasis on normal development. Spring. (Burhoe.)

Zool. 75 f s. Journal Club (2).

Reviews, reports, and discussions of current literature. Required of all students whose major is zoology. Summer, Fall; Spring, Summer. (Staff.)

For Advanced Undergraduates and Graduates

Zool. 101. Mammalian Anatomy (3)—Three laboratories. Registration limited. Permission of the instructor must be obtained before registration. Recommended for premedical students, and those whose major is zoology.

A course in the dissection of the cat or other mammal. By special permission of the instructor, a vertebrate other than the cat may be used for study. Laboratory fee, \$5.00. Spring. (Phillips.)

Zool. 103 f s. General Animal Physiology (6)—Two lectures; one laboratory. Prerequisites, one year of chemistry and one course in vertebrate anatomy. Registration limited to twelve, and permission of instructor must be obtained before registration. Either semester may be taken first. Both semesters must be completed before credit is granted.

The first semester work deals with the fundamentals of cellular and general physiology. The second semester is devoted to an application of these principles to the higher animals. Laboratory fee, \$5.00 each semester. Summer, Fall; Spring, Summer. (Phillips.)

Zool. 104. Genetics (3)—Required of students intending to take advanced courses in plant and animal breeding, and also of zoology majors.

A general course designed to give an insight into the principles of genetics or of heredity; a consideration of the factors instrumental in the transmission of characters through successive generations; and also to prepare students for later courses in the breeding of animals and plants. Summer, Fall. (Burhoe.)

Zool. 105. Aquiculture (3)—Two lectures; one laboratory. Prerequisite, one course in zoology.

The course deals with the practices employed in rearing aquatic animals and the properties of natural waters which render them suitable for environmental purposes. Laboratory fee, \$5.00. Summer, Fall. (Truitt.)

Zool. 108. Animal Histology (3)—One lecture; two laboratories. Prerequisite, one course in zoology.

A microscopical study of tissues and organs selected from representative vertebrates, but with particular reference to the mammal. Laboratory work includes the technique of preparing both normal and pathological tissues, including blood, for microscopical examination. Laboratory fee, \$5.00. Fall. (Hard.)

Zool. 120. Advanced Genetics (3)—Two lectures; one laboratory. Prerequisite, Zool. 104.

A consideration of salivary chromosomes, the nature of the gene, chromosome irregularities, polyploidy, and mutations. Breeding experiments with *Drosophila* and small mammals will be conducted. Laboratory fee, \$5.00. Spring. (Burhoe.)

Zool. 121. Principles of Animal Ecology (3)—Two lectures; one laboratory. Prerequisite, one course in zoology.

Animals are studied in relation to their natural surroundings. Biological, physical, and chemical factors of the environment which affect the growth, behavior, habits and distribution of animals are stressed in lecture and laboratory. The use of ecological instruments is studied in the laboratory and on field excursions to local areas of special interest. The course is designed to give a broad survey of the field of ecology and to offer a background for students who wish to continue with some special problem in the field. Laboratory fee, \$5.00. Summer, Spring. (Tressler.)

For Graduates

Zool. 200. Marine Zoology (4)—Two lectures; two laboratories.

Problems in salt water animal life of the higher phyla. Laboratory fee, \$5.00. Fall. (Truitt.)

Zool. 201. Microscopical Anatomy (4)—Two lectures; two laboratories.

A detailed study of the morphology and activity of cells composing animal tissues, with specific reference to the vertebrates. Laboratory work includes the preparation of tissues for microscopic examination, and opportunity to pursue special research problems. Recent advances in the field of cytology are covered in lectures, assigned readings, and reports. Laboratory fee, \$5.00. Fall. (Hard.)

Zool. 203. Advanced Embryology (4)—Two lectures; two laboratories.

Mechanics of fertilization and growth. A review of the important contributions in the field of experimental embryology and development of animals, including a consideration of tissue culture and transplantation. Laboratory fee, \$5.00. Spring. (Burhoe.)

Zool. 204. Advanced Animal Physiology (4)—Two lectures; two laboratories.

The principles of general and cellular physiology as found in animal life. Laboratory fee, \$5.00. Fall. (Phillips.)

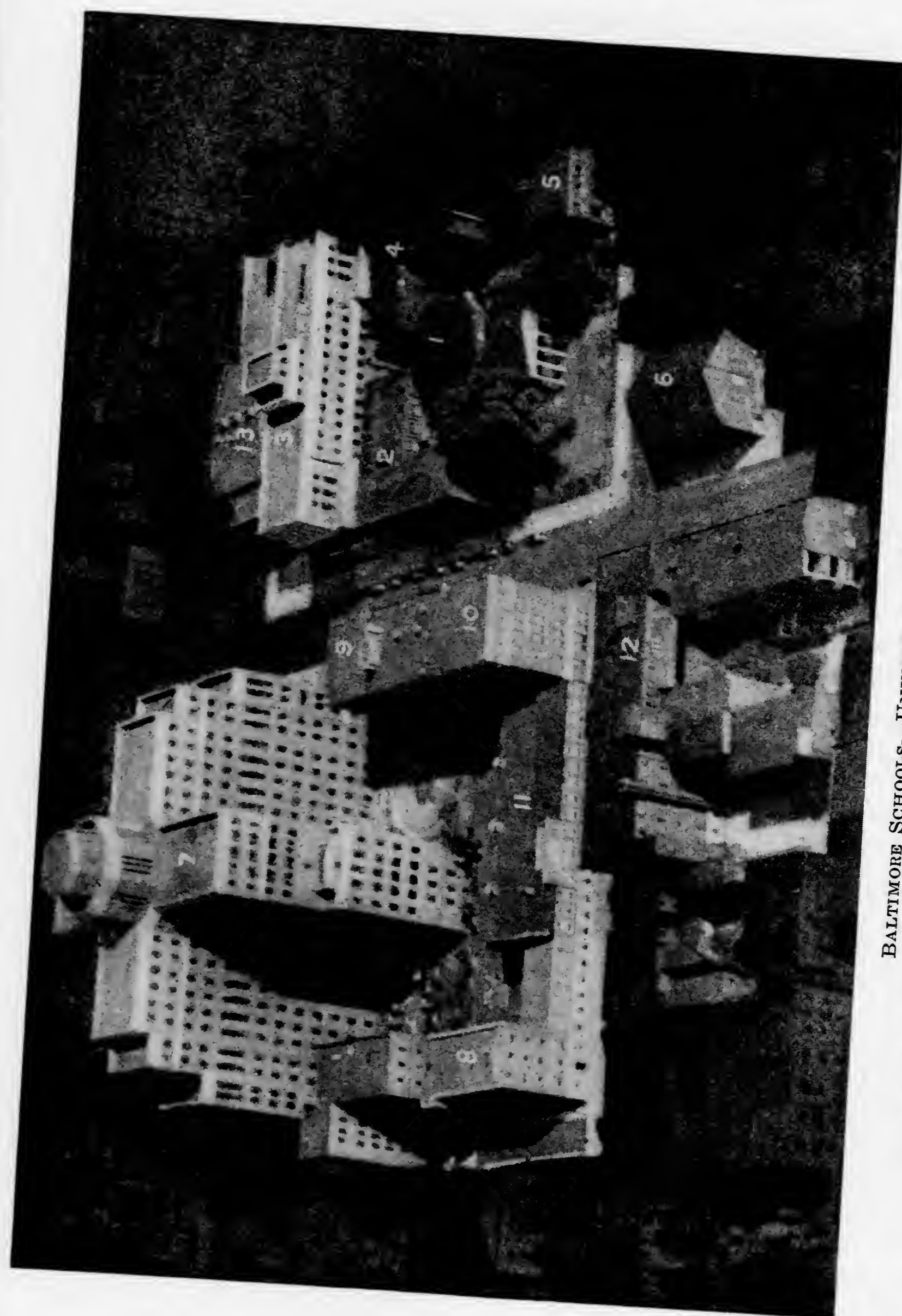
Zool. 205. Hydrobiology (4)—Two lectures; two laboratories.

A study of the biological, chemical, and physical factors which determine the growth, distribution, and productivity of microscopic and near microscopic organisms in marine and freshwater environments with special reference to the Chesapeake Bay region. Microscopic examination, identification of plankton, and experience with hydrobiological equipment and methods are provided for in the laboratory and field. Laboratory fee, \$5.00. Spring. (Tressler.)

Zool. 206. Research—Credit to be arranged. Laboratory fee, \$5.00 each semester. Summer, Fall, Spring. (Staff.)

Zool. 207 f s. Zoological Seminar (2).

Summer, Fall; Spring, Summer. (Staff.)



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6. Medical Library
7. University Hospital
8. Nurses' Home, Medicine
9. School of Pharmacy
10. School of Dentistry
11. Dental Clinic
12. Dent-Patient Clinics, Medicine
13. School of Law

SECTION III

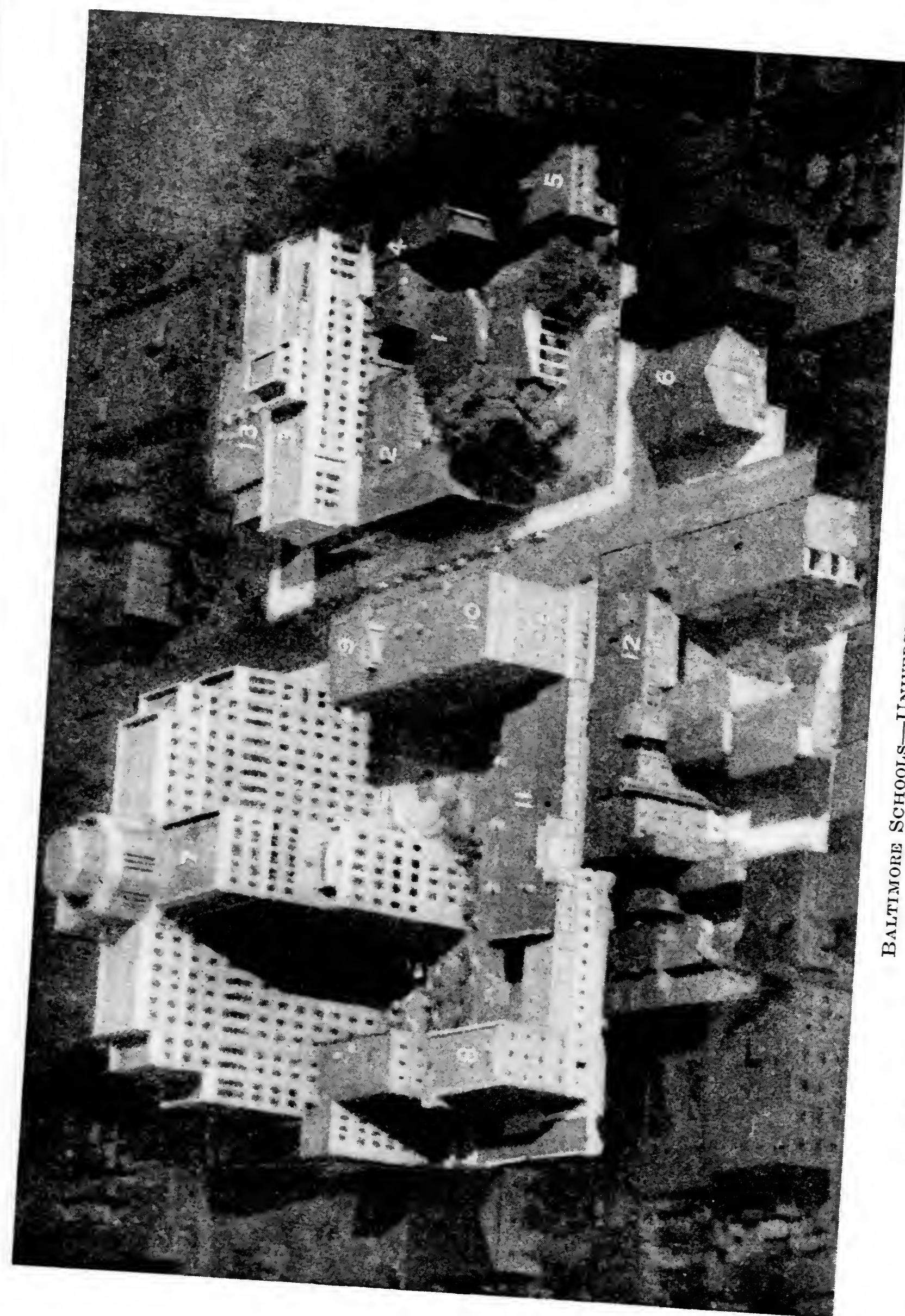
Resident Instruction

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E. EMMET REID, Ph.D.	Pharmacology
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 RILEY S. WILLIAMSON, M.Ed., Head of Technical Department, Baltimore City College, Baltimore Public Schools.
 HOWARD E. ZIEFLE, M.A., Principal, General Vocational School No. 294, Baltimore Public Schools.

**SCHOOL OF
DENTISTRY**



"Dentistry rests its claims upon its scientific, physiological, and moral purposes and obligations,—the preservation and restoration of function, the relief and prevention of suffering and pain, the restoration of grace and symmetry, and the aid it gives that there may be a sound mind in a sound body."

—Horatio C. Meriam.

SCHOOL OF DENTISTRY

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KATHERINE TOOMEY, Administrative Assistant

The Faculty Council

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History

The Baltimore College of Dental Surgery occupies an important and interesting place in the history of dentistry. At the end of the regular session, 1939-40, it completed its one hundredth year of service to dental education. The Baltimore College of Dental Surgery represents the first effort in history to offer institutional dental education to those anticipating the practice of dentistry.

The first lectures on dentistry in America were delivered by Dr. Horace H. Hayden in the University of Maryland, School of Medicine, between the years 1823-25. These lectures were interrupted in 1825 by internal dissensions in the School of Medicine and were discontinued. It was Dr. Hayden's idea that dental education merited greater attention than had been given it by medicine or could be given it by the preceptorial plan of dental teaching then in vogue.

Dr. Horace H. Hayden began the practice of dentistry in Baltimore in 1800. From that time he made a zealous attempt to lay the foundation for a scientific, serviceable dental profession. In 1831 Dr. Chapin A. Harris came to Baltimore to study under Hayden. Dr. Harris was a man of unusual ability and possessed special qualifications to aid in establishing and promoting formal dental education. Since Dr. Hayden's lectures had been interrupted at the University of Maryland and there was an apparent insurmountable difficulty confronting the creation of dental departments in medical schools, an independent college was decided upon. A charter was applied for and granted by the Maryland Legislature February 1, 1840.

Hayden and Harris, the admitted founders of the dental profession, contributed, in addition to the factor of dental education, other opportunities for professional growth and development. In 1839 the American Journal of Dental Science was founded, with Chapin A. Harris as its editor. Dr. Harris continued fully responsible for dentistry's initial venture into periodic dental literature to the time of his death. The files of the old American Journal of Dental Science testify to the fine contributions made by Dr. Harris. In 1840 the American Society of Dental Surgeons was

founded, with Dr. Horace H. Hayden as its president and Dr. Chapin A. Harris as its corresponding secretary. This was the beginning of dental organization in America, and was the forerunner of the American Dental Association, which now numbers approximately forty-five thousand in its present membership. The foregoing suggests the unusual influence Baltimore dentists and the Baltimore College of Dental Surgery have exercised on professional ideals and policies.

Building

The School of Dentistry is located at the northwest corner of Lombard and Greene Streets, adjoining the University Hospital. The building occupied by the Dental School provides approximately fifty thousand square feet of floor space, is fireproof, splendidly lighted and ventilated, and is ideally arranged for efficient use. It contains a sufficient number of large lecture rooms, classrooms, a library and reading room, science laboratories, technic laboratories, clinic rooms, and locker rooms. It is furnished with new equipment throughout and provides every accommodation necessary for satisfactory instruction under comfortable arrangements and pleasant surroundings.

Library

The Dental School is fortunate in having one of the best equipped and organized dental libraries among the dental schools of the country. It is located in the main building and consists of a stack room, collateral offices and a reading room that will accommodate ninety-six students. It contains over eight thousand bound volumes of dental textbooks and files of dental magazines, numerous pamphlets, reprints, etc.; while over 140 current dental magazines reach its reading tables. The two full-time librarians promote the growth of the Library and serve the student body in its use of library material. The Library is financed by direct appropriations from the State, by the income from an endowment established by the Maryland State Dental Association and by the proceeds of the sale of books to students. One of the most important factors of the dental student's education is to teach him the value and the use of dental literature in his formal education and in promoting his usefulness and value to the profession during practice. The Baltimore College of Dental Surgery is ideally equipped to take care of this phase of dental study.

Course of Instruction

The Baltimore College of Dental Surgery, Dental School, University of Maryland, offers a four-year course in dentistry devoted to instruction in the medical sciences, the dental sciences, and clinical practice. Instruction consists of didactic lectures, laboratory instruction, demonstrations, conferences, and quizzes. Topics are assigned for collateral reading to train the student in the value and use of dental literature.

Requirements for Admission to the School of Dentistry

Applicants for admission must present evidence of having successfully completed two years of work in an accredited college of arts and sciences based upon the completion of a four-year high-school course. No applicant will be considered who has not completed all requirements for advancement to the junior year in the arts and sciences college from which he applies. His scholastic attainments shall be of such quality as to ensure a high quality of achievement in the dental course.

Requirements for Matriculation and Enrollment

In the selection of students to begin the study of dentistry the School considers particularly a candidate's proved ability in secondary education and his successful completion of prescribed courses in predental collegiate training. The requirements for admission and the academic regulations of the College of Arts and Sciences, University of Maryland, are strictly adhered to by the School of Dentistry.

A student is not regarded as having matriculated in the School of Dentistry until such time as he shall have paid the matriculation fee of \$10.00, and is not enrolled until he shall have paid a deposit of \$50.00 to insure registration in the class.

Fees and Expenses

The tuition fee for residents of Maryland is \$137.50 per semester, and for non-residents \$187.50 per semester. In addition, there are a number of miscellaneous fees, such as those for laboratory, locker, dissecting, etc. A complete schedule of all fees will be found in the separate Catalogue of the School of Dentistry, a copy of which may be obtained from Dean, School of Dentistry, University of Maryland, Lombard and Greene Streets, Baltimore, Maryland.

Personal expenses, such as board and lodging, books, laundry, etc., depend to a large extent on the financial condition and resourcefulness of the individual student.

In addition to the above expenses, each student must provide himself with necessary instruments and materials for technic and clinic courses.

Advice to Predental Students

Students registered in the Predental Curriculum should secure a copy of the latest catalogue of the School of Dentistry early in their first year in college, in order to acquaint themselves with the requirements for admission.

The catalogue of this School may be secured by writing to the Dean, School of Dentistry, University of Maryland, Lombard and Greene Streets, Baltimore, Maryland.

**SCHOOL OF
LAW**

*"Justice is the great interest
of man on earth . . . Wherever
her temple stands, and so long
as it is duly honored, there is a
foundation for social security,
general happiness and the
improvement of our race."*

—Daniel Webster.

THE SCHOOL OF LAW

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GERTRUDE M. ANDERTON, Secretary to Dean.

The Faculty Council

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Academic Standing

The University of Maryland School of Law is a member of the Association of American Law Schools, an association composed of the leading law schools in the United States, whose member schools are required to maintain high standards of entrance requirements, faculty, library and curriculum. It, also, has been officially recognized by the Council of Legal Education of the American Bar Association as meeting the standards of that association, and has been placed upon its approved list. It is registered as an approved law school on the New York Regents' list.

History

While the first faculty of law of the University of Maryland was chosen in 1813, and published in 1817 "A Course of Legal Study Addressed to Students and the Profession Generally," which the North American Review pronounced to be "by far the most perfect system for the study of law which has ever been offered to the public," and which recommended a course of study so comprehensive as to require for its completion six or seven years, no regular school of instruction in law was opened until 1823. The institution thus established was suspended in 1836 for lack of financial support. In 1869 the School of Law was reorganized, and in 1870 regular instruction therein was resumed. From time to time the course of study has been made more comprehensive and the staff of instructors strengthened. Graduates of the School now number more than three thousand, and include a large proportion of the leaders of the Bench and Bar of the State of Maryland and many who have attained prominence in the profession elsewhere.

Building

The present Law School Building, erected in 1931, is located at the corner of Redwood and Greene Streets, Baltimore. In addition to providing classrooms, and offices for the Law faculty, it contains a large auditorium, practice-court room, students' lounge and locker rooms, and the law library, the latter containing a collection of carefully selected text-books, English and American reports, leading legal periodicals, digests, and standard encyclopedias. No fee is charged for the use of the library, which is open from 9.00 a. m. to 10.30 p. m.

Organization

The School of Law is divided into two divisions, the Day School and the Evening School. The same curriculum is offered in each school, and the standards of work and graduation requirements are the same.

The *Day School* course covers a period of three years of thirty-two weeks each, exclusive of holidays. The class sessions are held during the day, chiefly in the morning hours. The Practice Court sessions are held on Monday evenings from 8.00 to 10.00 p. m.

The *Evening School* course covers a period of four years of thirty-six weeks each, exclusive of holidays. The class sessions are held on Monday, Wednesday, and Friday evening of each week from 6.30 to 9.30 p. m. This plan leaves the alternate evenings for study and preparation by the student.

Accelerated Program

Due to the War emergency, the University of Maryland has adopted an accelerated educational program, providing for operation of the University on a three semester plan. The semesters are each approximately fifteen weeks in length, the summer semester beginning June, the fall semester early in October, and the spring semester early in February. The normal period required for completion of the course in either the Day School or the Evening School may be shortened by as much as one academic year through attendance during the summer semester. Beginning students may enter upon their studies at the beginning of any term.

Course of Instruction

The course of instruction in the School of Law is designed thoroughly to equip the student for the practice of his profession. Instruction is offered in the various branches of the common law, of equity, of the statute law of Maryland, and of the public law of the United States. The course of study embraces both the theory and practice of the law, and aims to give the student a broad view of the origin, development, and function of law, together with a thorough practical knowledge of its principles and their application. Analytical study is made of the principles of substantive and procedural law, and a carefully directed practice court enables the student to get an intimate working knowledge of procedure.

Special attention is given to the statutes in force in Maryland, and to any peculiarities of the law in that State, where there are such. All of the

subjects upon which the applicant for the Bar in Maryland is examined are included in the curriculum. But the curriculum includes all of the more important branches of public and private law, and is well designed to prepare the student for admission to the Bar of other States.

Admission

The requirements for admission are those of the Association of American Law Schools. Applicants for admission as candidates for a degree are required to produce evidence of the completion of at least two years of college work; that is, the equivalent of completion of at least one-half the work acceptable for a Bachelor's degree granted on the basis of a four-year period of study by the University of Maryland or other standard college or university in the State.

To meet this requirement, a candidate for admission must present at least sixty semester hours (or their equivalent) of college work taken in an institution approved by standard regional accrediting agencies and exclusive of credit earned in non-theory courses in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or other courses without intellectual content of substantial value. Such prelegal work must have been done in residence, no credit being allowed for work done in correspondence or extension courses, and must have been passed with a scholastic average at least equal to the average required for graduation in the institution attended.

In compliance with the rules of the Association of American Law Schools, a limited number of special students, not exceeding 10 per cent of the average number of students admitted as beginning regular law students during the two preceding years, applying for admission with less than the academic credit required of candidates for the law degree, may be admitted as candidates for the certificate of the school, but not for the degree, where, in the opinion of the Faculty Council, special circumstances, such as the maturity and apparent ability of the student, seem to justify a deviation from the rule requiring at least two years of college work. Such applicants must be at least twenty-three years of age and specially equipped by training and experience for the study of law.

Combined Program of Study Leading to the Degree of Bachelor of Arts and Bachelor of Laws

The University offers a combined program in liberal arts and law, leading to the degrees of Bachelor of Arts and Bachelor of Laws.

Students enrolled in this combined program spend the first three years of their course in the College of Arts and Sciences at College Park. For the fourth year they register in the School of Law, and upon the successful completion of the work of the first year in the Day School, or the equivalent work of the Evening School, are awarded the degree of Bachelor of Arts. The degree of Bachelor of Laws is awarded upon the successful completion of the work prescribed for graduation in the School of Law. For detailed information as to this combined course, see Section II, College of Arts and Sciences.

Combined Program of Study Leading to the Degrees of Bachelor of Science and Bachelor of Laws

The University also offers a combined program in commerce and law leading to the degrees of Bachelor of Science and Bachelor of Laws.

Students pursuing this combined program are required to spend the first three years in the College of Commerce at College Park. For the fourth year they will register in the School of Law, and upon the successful completion of the work of the first year in the Day School, or the equivalent thereof in the Evening School, are awarded the degree of Bachelor of Science. The degree of Bachelor of Laws is awarded upon the completion of the work prescribed for graduation in the School of Law.

For detailed information as to this combined course, see Section II, College of Arts and Sciences.

Admission to Advanced Standing

Students complying with the requirements for admission to the school who have, in addition, successfully pursued the study of law elsewhere in a law school which is either a member of the Association of American Law Schools or approved by the American Bar Association, may, in the discretion of the Faculty Council, upon presentation of a certificate from such law school showing an honorable dismissal therefrom, and the successful completion of equivalent courses therein, covering at least as many hours as are required for such subjects in this school, receive credit for such courses and be admitted to advanced standing. No student transferring from another law school will be admitted unless eligible to return to the school from which he transfers. No degree will be conferred until after one year of residence and study at the University of Maryland School of Law.

Fees and Expenses	Maryland Residents	Non- Residents
Tuition Fee, per semester:		
Day School	\$100.00	\$125.00
Evening School	75.00	100.00
Other fees: (Payable only once)		
Registration fee, to accompany application.....	2.00	2.00
Matriculation fee, payable on first registration	10.00	10.00
Diploma fee, payable just prior to graduation..	15.00	15.00
Note: The tuition fee is payable in full at the time of registration for each semester.		

The School of Law publishes a special catalogue, and a copy of this, or any further information desired, may be secured from: Dean, School of Law, University of Maryland, Lombard and Redwood Streets, Baltimore, Maryland.

**SCHOOL OF
MEDICINE**



*The Most High hath created
medicines out of the earth, and
a wise man will not abhor them.*

—Ecclesiasticus XXXVIII, 4, c. 180 B. C.

SCHOOL OF MEDICINE

H. BOYD WYLIE, *Acting Dean.*

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History

The School of Medicine of the University of Maryland, organized in 1807, is one of the oldest foundations for medical education in America, ranking fifth in point of age among the medical colleges of the United States. In the school building at Lombard and Greene Streets in Baltimore was founded one of the first medical libraries and the first medical college library in the United States.

At this Medical School for the first time in America, dissection was made a compulsory part of the curriculum, and independent chairs for the teaching of gynecology and pediatrics (1867), and of ophthalmology and otology (1873), were installed.

This School of Medicine was one of the first to provide for adequate clinical instruction by the erection in 1823 of its own hospital, and in this hospital intramural residency for senior students first was established.

Clinical Facilities

The original University Hospital, property of the University, is the oldest institution for the care of the sick in Maryland. It was opened in September, 1823, and at that time consisted of four wards, one of which was reserved for eye patients.

Besides its own hospital, the School of Medicine has control of the clinical facilities of the Mercy Hospital, in which thousands of patients annually are treated.

In connection with the University Hospital, an outdoor obstetrical clinic is conducted which, during the past year, supervised the delivery of 1,131 cases.

The hospital now has 435 beds and 50 bassinets—for medical, surgical, obstetrical, and special cases; and furnishes an excellent supply of clinical material for third-year and fourth-year students.

Dispensaries and Laboratories

The dispensaries associated with the University Hospital and Mercy Hospital are organized on a uniform plan in order that teaching may be the same in each. Each dispensary has departments of Medicine, Surgery, Oncology, Ophthalmology and Otology, Genito-Urinary, Gynecology, Gastro-Enterology, Oral Surgery, Cardiology, Pediatrics, Neurology, Orthopedics, Proctology, Psychiatry, Dermatology, Laryngology and Rhinology, and Tuberculosis. All students in their junior year work each day during one-third of the year in the Departments of Medicine and Surgery of the dispensaries. In their senior year, all students work one hour each day in the special departments, where more than 150,000 cases were treated last year. This gives an idea of the value of these dispensaries for clinical teaching.

Student laboratories conducted by the School of Medicine purely for medical instruction are as follows: Gross Anatomy, Histology and Embryology, Physiology, Bacteriology and Immunology, Biological Chemistry, Pharmacology, Pathology, Clinical Pathology, Operative Surgery and Surgical Anatomy.

Prizes and Scholarships

The following prizes and scholarships are offered in the School of Medicine. (For details see School of Medicine Bulletin.)

Faculty Medal; Dr. A. Bradley Gaither Prize; Dr. Samuel Leon Frank Scholarship; Hitchcock Scholarships; Randolph Winslow Scholarship; University Scholarship; Frederica Gehrmann Scholarship; Dr. Leo Karlinsky Memorial Scholarship; Clarence and Genevra Warfield Scholarships; Israel and Cecelia A. Cohen Scholarship; Dr. Horace Bruce Hetrick Scholarship, and the Medical Alumni Association Scholarship.

Admission to First Year Class

All applications for admission must be submitted on forms which may be secured from the Committee on Admissions, School of Medicine, University of Maryland, Baltimore, Maryland.

Applications for admission should be submitted well in advance of the date when the student desires to enter the School of Medicine, and will be accepted by the Committee on Admissions any time after the beginning of the academic year just preceding the academic year in which the student expects to enter. Selections for the Freshman Class are usually completed about six months in advance of the date of actual enrollment.

Admission to Advanced Standing

Students who have attended approved medical schools are eligible to file applications for admission to the second- and third-year classes. These applicants must be prepared to meet the current first-year entrance requirements in addition to presenting acceptable medical school credentials, and a medical school record based on courses which are quantitatively and qualitatively equivalent to similar courses in this school.

Application for advanced standing is made in accordance with the instructions accompanying the application form.

Minimum Requirements for Admission

The minimum requirements for admission to the School of Medicine are:

- (a) Graduation from an approved secondary school, or the equivalent in entrance examinations, and
- (b) Three calendar years of acceptable premedical credit earned in an approved college of arts and sciences. The quantity and quality of this preprofessional course of study shall be not less than that required for recommendation by the institution where the premedical courses are being, or have been, studied.

The premedical curriculum shall include basic courses in

English
Biology
Inorganic Chemistry
Organic Chemistry
Physics
French or German

and such elective courses as will complete a balanced three-year schedule of study.

The elective courses should be selected from the following three groups:

<i>Humanities</i>	<i>Natural Sciences</i>	<i>Social Sciences</i>
English (an advanced course in English composition should be taken, if possible)	Comparative Vertebrate Anatomy	Economics
Scientific German or French (a reading knowledge of either language is desirable, although German is preferred)	Embryology	History
Philosophy	Physical Chemistry or Quantitative Analysis	Political Science
	Mathematics	Psychology (a basic course should be taken)
		Sociology, etc.

For admission to the Pre-Medical Curriculum, the requirements are the same as for the freshman class in the College of Arts and Sciences, with the prescribed addition of two years of one foreign language.

Careful attention should be given to the selection of elective courses in the natural sciences. Accordingly, it is suggested that the elective list given above be a guide in this connection and that the remainder of the college credits be accumulated from courses designed to promote a broad cultural development. Students should avoid the inclusion of college courses in subjects that occur in the medical curriculum, for example, histology, histological technique, human anatomy, bacteriology, physiology, neurology, physiological chemistry.

It is not intended that these suggestions be interpreted to restrict the education of students who exhibit an aptitude for the natural sciences or to limit the development of students who plan to follow research work in the field of medicine.

In accepting candidates for admission, preference will be given to those applicants who have acceptable scholastic records in secondary school and college, satisfactory scores in the Medical Aptitude Test, favorable letters of recommendation from their premedical committees, or from one instructor in each of the departments of biology, chemistry, and physics, and who in all other respects give every promise of becoming successful students and physicians of high standing.

Those candidates for admission who are accepted will receive certificates of entrance from the Director of Admissions of the University.

Fees and Expenses

The tuition fee for Residents of Maryland is \$225 per semester, and for Non-Residents \$300 per semester. In addition, there are a number of miscellaneous fees, such as those for laboratory, student health service, students activities, maintenance and service, etc. A complete schedule of all fees will be found in the bulletin of the School of Medicine, a copy of which may be obtained from the Committee on Admissions.

Personal expenses, such as board and lodging, books, laundry, etc., naturally depend to a large extent on the financial condition and resourcefulness of the individual student. They range from \$400 to \$750 per year; the average being about \$600.

In addition to the above expenses, each student must provide himself with a suitable microscope.

Advice to Pre-Medical Students

Students registered in the Pre-Medical Curriculum should secure a copy of the latest catalogue of the School of Medicine early in their first year in college in order to acquaint themselves with the requirements for admission. A copy of this bulletin may be obtained by writing to the Committee on Admissions, School of Medicine, University of Maryland, Lombard and Greene Streets, Baltimore, Maryland.

SCHOOL OF
NURSING



*"Nursing is one of the most
beautiful and tender of all the
arts of life."*

—M. Adelaide Nutting.

SCHOOL OF NURSING

ANNIE CRIGHTON, R.N., *Director and Superintendent of Nurses*

The University of Maryland School for Nurses was established in the year 1889. Since that time it has been an integral part of the University of Maryland. The school is non-sectarian, the only religious services being morning prayers.

The new University of Maryland Hospital is a general hospital, containing 435 beds and 50 bassinets. It is equipped to give young women a thorough course of instruction and practice in all phases of nursing.

Programs Offered

The program of study of the school is planned for two groups of students: (a) the three-year group and (b) the five-year group.

Requirements for Admission

A candidate for admission must be a graduate of an accredited high school or other recognized preparatory school, and must present record showing that she has completed satisfactorily the required amount of preparatory study. Preference will be given to students who rank in the upper third of the graduating classes in their preparatory schools.

Candidates are required to present 16 units for entrance: 8 required units and 8 elective units.

Required units: English (I, II, III, IV), 4 units; algebra to quadratics, 1 unit; history, 1 unit; chemistry, 1 unit. Total, 8 units.

Elective units: Any subject offered in a standard high school or preparatory school for which graduation credit is granted toward college or university entrance. Eight units must be submitted from this group, of which not more than four units can pertain to vocational subjects.

In addition to the above requirements, students must meet certain other definite requirements in regard to health, age, and personal fitness for nursing work.

The preferable age for students registering for the three-year course is 20 to 35 years, although students may be accepted at the age of 18. Women of superior education and culture are given preference, provided they meet the requirements in other particulars. If possible a personal interview with the Director of the School should be arranged preferably on Tuesday or Friday from 11:00 a. m. to 12:00 m.

An application blank will be furnished upon application to the Director of the School of Nursing, University of Maryland Hospital, Baltimore, Maryland.

Registration With Maryland State Board of Examiners of Nurses

By regulation of the Maryland State Board of Examiners of Nurses, all students entering schools of nursing in Maryland must, at the beginning of their course, register with the Board in order to be eligible for examination and license on completion of the course.

The fitness of the applicant for the work and the propriety of dismissing or retaining her at the end of her term of probation are left to the decision of the Director of the School. Misconduct, disobedience, insubordination, inefficiency, neglect, and failure to develop those qualities considered essential in a nurse, are causes for dismissal at any time.

The requirements for admission to the five-year combined program of the School of Nursing are similar to those for the undergraduate colleges. The three-year program is designed to meet the requirements for the diploma in Nursing, and comprises the work of the first, second, and third hospital years.

Admission

Students for the spring term are admitted in February; for the fall term in September or October; and for the five year course in September.

Hours of Duty

During the preparatory period students are engaged in class work for the first four months with no general duty in the hospital, and for the remainder of this period they are sent to the wards on eight-hour duty. During the first, second, and third years the students are on eight-hour day duty and nine-hour night duty, with six hours on holidays and Sundays. The night-duty periods are approximately two months each, with one day at the termination of each term for rest and recreation. The period of night duty is approximately five to six months during the three years.

The first four months of the preparatory period are devoted to theoretical instruction given in the lecture and demonstration rooms of the training school, hospital, and medical school laboratories. The average number of hours per week in formal instruction, divided into lecture and laboratory periods, is 30 hours. This instruction includes courses in anatomy, physiology, cookery and nutrition, dosage and solution, hygiene, bacteriology, chemistry, materia medica, practical nursing, bandaging, professional ethics, and history of nursing. During the last two months of the probation period the students are placed on duty in the hospital wards for instruction in bedside nursing, and are expected to perform the duties assigned to them by the Director of the School. At the close of the first semester, students are required to pass satisfactorily both written and practical tests. Failure to do so will be sufficient reason for terminating the course at this point.

Sickness

A physician is in attendance each day, and all students, when ill, are cared for gratuitously. The time lost through illness in excess of two weeks,

during the three years, must be made up. Should the authorities of the school decide that, because of time lost, the theoretical work has not been sufficiently covered to permit the student to continue in the current year, it will be necessary for her to continue her work with the next class.

Vacations

Vacations are given between June and September. A vacation period of four weeks is allowed the student at the completion of the first year, and a similar vacation at the completion of the second year.

Expenses

A fee of \$50.00, payable on entrance, is required from each student. A student activity fee of \$5.00 is to be paid each year at the beginning of the first semester by each student. These fees will not be returned. A student receives her board, lodging, and a reasonable amount of laundry from the date of entrance. During her period of probation she provides her own uniforms, obtained through the hospital at nominal cost. After being accepted as a student nurse, she wears the uniform supplied by the hospital. The student is also provided with text-books and shoes. In her senior year she should be prepared to meet an expense of \$30.00 for affiliations. Her personal expenses during the course of training and instruction, naturally, will depend upon her individual habits and tastes.

General Plan of Instruction

The course of instruction covers a period of three years, including the preliminary term of six months. The course of instruction is, in general, as follows:

First Year

First Semester

The first semester, or preliminary term, is devoted to theoretical instruction given in the class rooms of the Nursing School and in lecture rooms and laboratories of the Medical School, and to supervised practice in the wards of the hospital. The courses offered are anatomy, physiology, cookery and nutrition, dosage and solutions, chemistry, bacteriology, hygiene, history of nursing, ethics, psychology, principles and practice of nursing, bandaging and surgical supplies.

Excursions are made to a filtration plant, hygienic dairies, markets, and other places of interest.

At the close of the first semester the students are required to pass satisfactorily both written and practical tests. Failure to do this will be sufficient reason to terminate the course at this period.

Second Semester

During this term the students receive theoretical instruction in general surgery, surgical technic, massage, diet therapy, materia medica, advanced nursing procedures and charting, and the case study method. Ward

assignments and instruction provide experience in medical, surgical, gynecological and urological nursing, also in the diet school and outpatients department. This experience is under the direction and supervision of the supervisors of the departments.

Second Year

During this period the theoretical instruction includes general medicine, clinical pathology, venereal and skin diseases, x-ray, radium, communicable diseases, pediatrics, obstetrics, gynecology, orthopedics, and diseases of eye, ear, nose, and throat. The hospital assignment here provides instruction and experience on the public wards, on the private floors, and in the operating room.

Third Year

During the third year the theoretical instruction includes psychiatry, public health, professional problems, and survey of the nursing field. The assignments include experience in psychiatric nursing, in public health nursing, in obstetrics and pediatrics.

Attendance at Classes

Attendance is required at all classes for each course for which the student is registered. Absences are excused only in cases of illness or other satisfactory reason.

Examinations

Examinations are both written and oral, and include practical tests. Failure in two or more subjects may necessitate increasing the length of the course.

During the three years of nursing experience in the various departments of the hospital, a monthly record of the student's nursing work is submitted by the nurse in charge. The student's standing is based upon the examinations in the theoretical subjects and these monthly records.

Graduation

The diploma of the school will be awarded to those who have successfully completed the required course of three years, and have maintained the required average in each course and phase of work.

Five-Year Program

In addition to the regular three-year course of training, the University offers a combined Academic and Nursing program leading to the degree of Bachelor of Science and a Diploma in Nursing.

The first two years of the course (or prehospital period), consisting of 68 semester hours, are spent in the College of Arts and Sciences of the University at College Park, during which period the student has an introduction to the general cultural subjects which are considered fundamental

in any college training. At least the latter of these two years must be spent in residence at College Park. The last three years are spent in the School of Nursing in Baltimore.

The degree of Bachelor of Science and the Diploma in Nursing may be conferred upon students who complete successfully the prescribed combined academic and nursing program, maintaining the required averages in each branch of the course.

Scholarships

One scholarship has been established by the alumnae of the Training School, which entitles a nurse to a six-weeks' course at Teachers College, Columbia University, New York. This scholarship is awarded at the close of the third year to the student whose work has been of the highest excellence, and who desires to pursue graduate study and special work. There are two scholarships of the value of \$50.00 each: the Edwin and Leander M. Zimmerman prize for practical nursing and for displaying the greatest interest and sympathy for the patients; and the Elizabeth Collins Lee prize, given to the student having the second highest average in scholarship. An alumnae pin is presented by the Women's Auxiliary Board to a student who at the completion of three years shows marked executive ability. A prize of \$25.00 is given by Mrs. John L. Whitehurst to a student who at the completion of three years of work shows exceptional executive ability.

The School of Nursing issues annually a special catalogue, and a copy of this bulletin, or any further information desired may be had upon application to:

Director, School of Nursing,
University of Maryland,
Redwood and Greene Streets,
Baltimore, Maryland.

SCHOOL OF PHARMACY



"Pharmacy has for its primary object the service which it can render to the public in safeguarding the handling, sale, compounding and dispensing of medicinal substances."

"The practice of pharmacy demands knowledge, skill and integrity on the part of those engaged in it . . . The states restrict the practice of pharmacy to those persons who by reason of special training and qualifications are able to qualify under regulatory requirement."

"In return the states expect the Pharmacist to recognize his responsibility to the community and to fulfil his professional obligations honorably"

—From the Code of Ethics of the
American Pharmaceutical Association.

SCHOOL OF PHARMACY

A. G. DU MEZ, *Dean*MISS B. OLIVE COLE, *Secretary of Faculty*

Faculty Council

A. G. DU MEZ, Ph.G., B.S., M.S., Ph.D.

E. F. KELLY, Phar.D., Sc.D.

WALTER H. HARTUNG, B.A., Ph.D.

CLIFFORD W. CHAPMAN, B.A., M.Sc., Ph.D.

J. CARLTON WOLF, B.Sc., Phar.D.

B. OLIVE COLE, Phar.D., LL.B.

H. E. WICH, Phar.D.

THOMAS C. GRUBB, A.B., Ph.D.

A. W. RICHESON, B.S., A.M., Ph.D.

History

The School of Pharmacy began its existence as the Maryland College of Pharmacy. The latter was organized in 1841, and operated as an independent institution until 1904, when it amalgamated with the group of professional schools in Baltimore then known as the University of Maryland. It became a department of the present University when the old University of Maryland was merged with the Maryland State College in 1920. With but one short intermission, just prior to 1865, it has continuously exercised its function as a teaching institution.

Location

The School of Pharmacy is located at 32 South Greene Street, in close proximity to the Schools of Medicine, Law, and Dentistry.

Aims

The School of Pharmacy provides systematic instruction in pharmacy, the collateral sciences, and such other subjects as are deemed to be essential in the education of a pharmacist. Its chief aim is to prepare its matriculant for the intelligent practice of dispensing pharmacy, but it also offers the facilities and instruction necessary for the attainment of proficiency in the practice of the other branches of the profession and in pharmaceutical research.

Recognition

This school is accredited by the American Council on Pharmaceutical Education and holds membership in the American Association of Colleges of Pharmacy. The object of these agencies is to promote the interests of pharmaceutical education; and all institutions accredited by the Council or holding membership in the Association must maintain certain minimum requirements for entrance and graduation. Through the influence of the Council, uniform and higher standards of education have been adopted; and the fact that several states by law or by Board ruling recognize the standards of the Association is evidence of its influence.

The school is registered in the New York Department of Education, and its diploma is recognized in all states.

Requirements for Admission*

The requirements for admission are those prescribed by the American Council on Pharmaceutical Education and the American Association of Colleges of Pharmacy.

Admission to Freshman Class from Secondary Schools

An applicant from a secondary school may be admitted either by certificate, or by examination, or by a combination of the two methods.

Admission by Certificate

An applicant must be a graduate of a secondary school which is approved by the State Board of Education of Maryland or by an accrediting agency of equal rank, and which requires for graduation not less than 16 units, grouped as follows:

Required units, 8; elective units, 8; total units, 16.

Required units: English, (I, II, III, IV), 4 units; algebra to quadratics, 1 unit; plane geometry, 1 unit; history, 1 unit; science, 1 unit. Total, 8 units.

Elective units: Any subjects offered in a standard high or preparatory school for which graduation credit is granted towards college or university entrance. Total, 8 units.

A unit represents a year's study in any subject in a secondary school, and constitutes approximately one-fourth of a full-year's work. It presupposes a school year of 36 to 40 weeks, recitation periods of from 40 to 60 minutes, and for each study four or five class exercises a week. Double laboratory periods in any science or vocational study are considered as equivalent to one class exercise. Normally, not more than three units are allowed for four years of English. If, however, a fifth course has been taken, an extra unit will be granted.

A graduate of an approved secondary school in Maryland who meets the certification requirements of the State Department of Education or the Department of Education of Baltimore City will be admitted upon the presentation of the proper certificate from the principal. A graduate who does not meet fully these requirements may be required to present further evidence of ability to undertake college work. At the discretion of the Director of Admissions, this may include an appropriate examination. Such examinations will be given during the first week of July, August, and September at Baltimore and at other convenient places in the state. Applicants concerned will be notified when and where to report.

An applicant for admission by certificate from a secondary school not located in Maryland must be recommended by the principal, and must have attained the certification-to-college grade of the school. If the school

*The right is reserved to refuse admission to any applicant whose presence in the School would, in the judgment of the Faculty Council, be detrimental to the best interests of the School.

does not have such a quality grade, then the average of the applicant's school grades must be at least ten points or one letter higher than the lowest passing grade of the school.

Admission by Examination

An applicant from a secondary school who is not eligible for admission by certificate may seek entrance through either of two types of examination: (1) he may appeal to the Director of Admissions for permission to report at the University for an examination, the result of which will be used in conjunction with the secondary school record to determine whether the applicant should be admitted, or (2) he may be admitted on presenting evidence of having passed satisfactorily other approved examinations in the subjects required for graduation from an accredited secondary school. Such examinations are offered by the College Entrance Examination Board, 431 West 117th Street, New York City; the Regents of the University of the State of New York, Albany; and the Department of Public Instruction of the State of Pennsylvania, Harrisburg.

Applications for admission must be approved, not only by the Director of Admissions, but also by the Committee on Admissions of the Faculty Council of the School of Pharmacy.

Admission with Advanced Standing

A student who presents, in addition to high school requirements, credit for work done in a school of pharmacy accredited by the American Council on Pharmaceutical Education will receive credit for the courses which correspond in length and content to those prescribed for the first three years of the curriculum and be admitted with advanced standing, provided he presents an official transcript of his record and a proper certificate of honorable dismissal.

Credit for general educational subjects will be given to a student presenting evidence of having completed work in an accredited academic institution equal in value to that outlined in this catalogue.

A transferring student in either case must satisfy the preliminary educational requirements outlined under "Requirements for Admission to Freshman Class from Secondary School."

Special Students

An applicant who cannot furnish a sufficient number of entrance credits and who does not desire to make up the units in which he is deficient may enter as a special student and pursue all the branches of the curriculum, but will not be eligible for graduation and will not receive a diploma. The Faculty Council reserves the right to refuse admission to any applicant whose preliminary training is deemed to be insufficient.

Requirements for Graduation

The degree of Bachelor of Science in Pharmacy (B.S. in Phar.) will be conferred upon a candidate who has met the following requirements:

1. Completion of the full prescribed curriculum. The work of the last year must have been in courses offered in this school, and must have been done in residence at this school.
2. A total semester hour credit of not less than 140, with a grade point count for each of the last two years of not less than twice the total semester hours of credit scheduled for these years.

Matriculation and Registration

The matriculation ticket must be procured from the office of the School of Pharmacy, and must be taken out before one enters classes. After matriculation, all students are required to register at the office of the Director of Admissions.

Expenses	Maryland Residents	Non-Residents
Tuition fee, per semester.....	\$110.00	\$135.00
Laboratory and breakage fee, per semester.....	30.00	30.00
Other fees: (Payable only once)		
Matriculation fee (Payable on first registration)	10.00	10.00
Diploma fee (Payable at beginning of final semester of Senior Year).....	15.00	15.00

Notes: The tuition fee and the laboratory and breakage fee are payable in full at the time of registration for each semester. The Diploma fee will be returned in the event the student fails to complete the requirements for graduation.

The School of Pharmacy publishes annually a separate catalogue, and a copy of this, or any further information desired, may be obtained from Dean, School of Pharmacy, University of Maryland, Baltimore, Maryland.

UNIVERSITY HOSPITAL

Redwood and Greene Streets
Baltimore, Maryland

J. E. SAVAGE, M.D., *Acting Superintendent.*

The University Hospital, located in Baltimore adjacent to the Medical School group, was first opened at the corner of Lombard and Greene Streets, Baltimore, as the hospital of the University of Maryland, Medical School, in 1823. Originally containing four wards it was increased through additions from time to time until about 1875 when, with the addition of the Greene Street wing, it reached the capacity of approximately 250 beds, continuing this number of beds until 1934, when the present new hospital building was opened which now provides 435 beds, plus 50 bassinets.

In addition to furnishing the clinical facilities for the students of the University of Maryland, School of Medicine, the hospital offers to residents of the State of Maryland the facilities of a modern General Hospital.

During the fiscal year which ended September 30, 1941, there were admitted to the University Hospital 10,742 patients who were furnished a total of 153,606 days of patient care. During this period 1,453 babies were born in the hospital. During the same period there were registered in the Out-Patient Department of the Hospital (Emergency Department and general dispensaries) 46,081 patients never previously served who, during the year, made a total of 135,114 visits to the Out-Patient Department.

The externe service delivered 1,131 mothers at home. A total of 23,807 visits were made to these homes by the doctors, nurses and senior students of this service.

The patients admitted to the hospital during the past year represented residents of every county in the State of Maryland; 23 States of the United States and the District of Columbia; Peru and Porto Rico, and seamen of 12 foreign registrations.

COLLEGE OF EDUCATION, BALTIMORE DIVISION

Because approximately one-half of the State's population and its largest school district are in the City of Baltimore, the University of Maryland operates the Baltimore Division of the College of Education primarily for the training of teachers in service and those preparing to teach. Originally the Division's work was exclusively in the field of Industrial Education, but with increasing demands the scope of instruction gradually has been enlarged until now it includes many phases of education for teachers.

The Baltimore Division is fortunate in having two teaching staffs on which to call: the regular faculty of the University in the College of Arts and Sciences, the College of Education, and the Baltimore professional schools; and a special faculty of Industrial Education specialists drawn largely from the Baltimore Public Schools. It is the policy of the University to use in all of its Divisions, including the Baltimore and the extension courses of the College of Education, in so far as possible, instructors who are regular members of its day school staff. When members of that staff are unavailable, the University calls on outside instructors.

Although the Baltimore Division is primarily an instructional division for teachers, the full time staff stands ready to give service to all individuals and agencies that need its help. It is particularly anxious to assist adult groups with special problems of leadership training, and to cooperate with industrial and business organizations in their personnel training programs. The growing importance of the instruction given in the Baltimore Division is evidenced by the fact that steadily increasing demands are being made upon it.

SECTION IV

Records and Statistics

DEGREES, HONORS, SUMMARY OF ENROLLMENT

DEGREES CONFERRED, 1940-1941

(All degrees conferred at Commencement, June 6, 1941, except as noted.)

HONORARY DEGREES

Doctor of Laws

PAUL VORIES McNUTT

Doctor of Science

HOWARD BRUCE

GEORGE ELI BENNETT

HENRY ARMIT BROWN DUNNING

*WORTLEY FULLER RUDD

Doctor of Pharmacy

*ROBERT SENTMAN MCKINNEY

Honorary Certificates in Agriculture

LEVIN OTIS CORKRAN

CLAY PENNINGTON WHITEFORD

DANIEL EWING WIGHT

THE GRADUATE SCHOOL

Doctor of Philosophy

MARRIOTT WARFIELD BREDEKAMP

CARL KESTER DORSEY

FRED WILSON ELLIS

HARRIET LOUISE FRUSH

HOWARD WILLIAM GILBERT

LESTER PHILIP GUEST

KENNETH ELDRED HAMLIN, JR.

JOHN CLARKE HAMMOND

JAMES GRANT HAYDEN, JR.

CHESTER W. HITZ

GEORGE LAWRENCE KALOUSEK

LEONARD KAREL

JOHN WELLINGTON KNOWLTON

HERMAN FINK KRAYBILL

JOSEPH SIDNEY LANN

RUSSELL ERNEST LEED

NATHAN LEVIN

SOLOMON LOVE

MARLOW WILLIAM OLSEN

ROBERT FREDERICK PETERSON

WILLIAM ARTHUR PURDUM

MARK SCHWEIZER

LEONARD SMITH

ELSIE MAY SOCKRIDER

WILLIAM ALEXANDER STANTON

CARL KERBY STODDARD

JOHN KEENAN TAYLOR

ALBERT EDWARD TEPPER

WILLIAM BIRD TERWILLIGER

*Degree conferred June 5, 1941.

Master of Arts

WILLARD OSBORNE ASH	CLETUS DILMOND LOWE
FRANK GRAHAM BANTA	MYRTLE THOM MCKNEW
ADA MISSOURA BEALL	JOSEPH MARTIN MEHL, JR.
LOLA ELIZABETH BOYD	JOE CORBY NEWCOMER
HAROLD EDWIN CARTER	ORPHA-BONITA PRITCHARD
HENRIETTA ELIZABETH CHESLEY	VIRGINIA GERALDINE PRITCHARD
JEROME DENABURG	VIRGINIA LEE RILEY
CHARLES WESLEY DUDDERAR	CARRIE ELAINE ROBEY
RAYMOND FRANCIS DUGAN	ROBERT L. SMITH
MILO VIVIAN GIBBONS	RUTH PURVIS SMITH
MARY OLIVIA GREEN	WALTER MARION SPARKS
GEORGE EASTHAM HAND	JOHN PERRY SPEICHER
ALBERT FRANKLIN HERBST	JOHN SHERMAN THATCHER
RAYMOND JUMP	RALPH IRWIN WILLIAMS
MARY ELEANOR KEPHART	HOWARD EDWARD ZIEFLE
MABEL ADELE SWANSON LIVINGSTON	

Master of Science

RICHARD WARREN AKELEY	ROBERT EUGENE MATHER
MAURICE DAVID ATKIN	EARL EDWARD MILLER
IRVIN BACHMAN	ADA FANJOY PEERS
RICHARD HENRY BARRY	D. VINCENT PROVENZA
THOMAS HAROLD BARTILSON	HAROLD BERKELEY ROBINSON
WILLIAM HOWARD BEAMER	MILTON JACQUES ROSEN
NELLIE MONROE CONE	JOHN PARRISH SECREST
JOHN COTTON	ROGER WILLIAM SNYDER
EDWARD FRENCH DAVIS	ALSTON WESLEY SPECHT
GUY ERVIN, JR.	FRANCIS C. STARK, JR.
WALTER CHRISTIAN GAKENHEIMER	PATRICIA WILLINGHAM STIER
LEON GOLDMAN	WILLIAM WINFIELD WALTON
PHILIP CLASSON HARVEY	CAROLYN ISABELLE WEBSTER
DANIEL KAUFMAN	ARTHUR PAUL WIEDEMER
MARGARET COBEY KEMP	CHARLES SIMPSON WILLIAMS
WILLIAM JAMES LODMAN	SARA ELIZABETH WISE
RICHARD EVERETT MAI	

Master of Education

ROWANNETTA SARAH ALLEN	CLARK HEIRONIMUS
DORIS LANAHAN BOWIE	JAMES HOMER HOUSE
EARL FRANKLIN BRAIN	ROBERT WILSON JONES
JOHN THOMAS BRUEHL, JR.	ROGER DENNIS McDERMOTT
NELLIE MARGARET HOLLABAUGH	THORMAN ARCHER NELSON
DAVIDSON	THERESA BARBARA NICHT
CHARLES RAYMOND GROSS	KATHERYNE SEVERANCE PORTER
CLIFFORD ALFRED HACK	EDWARD DENNIS REED

LOUIS KENNARD RHODES, JR.
DOROTHY MARIE SCHNEIDER
RUTH WHITE SESSIONS
F. ELIZABETH SMITH
ETHEL SNYDER
ALBERT REYNOLDS VAN METRE

ROBERT SIDNEY WATKINS
DAVID STERLING WHEELWRIGHT
DOROTHY EUGENIA WHITE
CHARLES MERRICK WILSON
ARTHUR JOHN WONDRACK
NADIA WRIGHT ZIMMERMAN

COLLEGE OF AGRICULTURE

Bachelor of Science

HARRY WILBERT ANDERSON
HOWARD MONROE BAILEY
JAMES MONROE BEATTIE
DONALD STANTON BIERER
GLENN MILES BOSLEY
HENRY C. BOTHE
VIRGINIA LOMBARD BROWN
GEORGIANNA ELIZABETH CALVER
CHARLES MARION CHANCE
HILDE MARIE CHRISTENSEN
CHARLES ELWOOD CLENDANIEL, JR.
DANIEL TOWNSEND COX
LEXEY JANE CRAGIN
LEE SHARP CRIST
THOMAS CHANDLER CRUIKSHANK, IV
JORGE DE ALBA M.
MARYAN SINGLETON DONN
WILLIAM B. DURM
LAURA HAMPSON EYLER
EDGAR FREDERIC FAULKNER
CHARLES EDGAR FOGLE
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JACK EDWARD WEBER
*N. BOND WEBER

*Degree conferred August 2, 1940.

COLLEGE OF ARTS AND SCIENCES

Bachelor of Arts

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HARRIET VIRGINIA KIRKMAN	CHARLES WILLIAM WOODWARD JR.
BERNICE EDITH KRESS	JUNE LEE YAGENDORF

*Degree conferred August 2, 1940.

COLLEGE OF ARTS AND SCIENCES

Bachelor of Science

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Bachelor of Science

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FRANK WILLIAMS CAREY, JR.	GUY GRAY GANTZ, JR.
EDMOND THAYER CHANDLER	JOHN BROWN GUNTER, JR.

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NORMAN HAL HIMELFARE	J. LEO MUELLER, JR.
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JOHN ALEXANDER MCCONNACHIE	GINO VALENTI
ROBERT LEONARD MOOG	ERNEST GUNTHER WAGNER
JOHN L. MUELLER	DAVID RAYMOND WEATHERSBEE
	RAYMOND LEROY WORTHINGTON

SCHOOL OF DENTISTRY

Doctor of Dental Surgery

FREDERICK AURBACH	MICHAEL FULTON
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STERRETT PATTERSON BEAVEN	MAXWELL SOLOMON GOLDEN
DANIEL ELIHU BERMAN	ABRAHAM GUDWIN
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EDWARD BRESSMAN	EARL CHRISTIAN HEWITT
MELVIN ROBERT BRISKIN	HAROLD PAUL HYMAN
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Bachelor of Arts

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FRANCES LEONE NORDWALL	MARGARET CATHERINE ZIMMERMAN
ELLSWORTH BASSFORD NOWELL	

Bachelor of Science

*RALPH LUTHER ANGEL	BASIL MELVILLE BURTON
VIVIAN ELIZABETH APPLGARTH	ISABEL REED BUTLER
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*Degree conferred August 2, 1940.

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MARGARET FAY MCGUIRE
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 *GERTRUDE VIRGINIA WONN
 *ROBERT KENNEDY WRIGHT
 PAUL YAFFE
 *MILDRED FLETCHER YEAGER
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COLLEGE OF ENGINEERING

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 JOHN WILLIAM CLARK, JR.
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ALDEN ELON IMUS
 WILLARD CECILLIUS JENSEN
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COLLEGE OF HOME ECONOMICS

Bachelor of Science

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 HELEN EDITH BONDAREFF
 EMMA LYDIA BOSS
 LILLIAN ELIZABETH BROOKENS
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M.ADELE DIXON
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 MARGARET THOMSON LOAR
 MARY ELIZABETH LUNG
 EARLA BALL MARSHALL
 CATHERINE HONORE MCCARRON

*Degree conferred August 2, 1940.

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DOROTHY NELLIS
ELIZABETH WILSON OWENS
PATRICIA MAY PIERCE
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EVELYN NADINE WATSON
MARY ELOISE WEBB
RUTH ROSINA WEGMAN
MARGARET WEIL
HELEN EDYTHE WILLIAMS

SCHOOL OF LAW

Bachelor of Laws

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†CHARLES CHESTER WILSON ATWATER	ELMER JOSEPH MAHONEY
ROBERT TAYLOR BARBOUR	JOSEPH ALOYSIUS MATTINGLY
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VICTOR HARTWELL LAWS, JR.	GEORGE WAINGOLD
†ABRAHAM A. LIGHT	JOHN PHILIP WENCHEL, II
JAMES BARRETT MAGINNIS	W. A. STEWART WRIGHT

Certificates of Proficiency

CHARLES JACOB HENDRICKSON	DARWIN B. MARTIN
---------------------------	------------------

*Degree conferred August 2, 1940.

†With Honor.

SCHOOL OF MEDICINE

Doctor of Medicine

AURORA FRANCES ALBERTI	RAYMOND NASIF MALOUF
FRED ALEXANDER	JACOB BARRY MANDEL
JEROME CAYTON ARNETT	WILLIAM ARTHUR MITCHELL
CHARLES PHELPS BARNETT	JOSE GILBERTO MOLINARI
JOSHUA WARFIELD BAXLEY, III	MARGARET ELAINE MORGAN
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WILLIAM ROSS BUNDICK	JAMES JOSEPH PATRICK NOLAN
JOHN MARSHALL CARTER	MIGUEL NOVOA-CABALLERO
PIERSON MELVIN CHECKET	IDALIA ORTIZ ORTIZ
CARLOS MIGUEL CHIQUES	MARGARET VIRGINIA PALMER
CHARLES EDGAR CLONINGER	BENJAMIN PASAMANICK
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CAMILLE MARY EVOLA	CLYDE ARTHUR ROSSBERG
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WILLIAM GOODMAN	STANLEY EUGENE SCHWARTZ
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FRANKLIN EARL LESLIE	RAYMOND KIEF THOMPSON
LORMAN LEON LEVINSON	RICHARD WHITE TREVASKIS
JOSE S. LICHA	GEORGE JOHN ULRICH
WILLIAM COOK LOWE	EDMUND JOSEPH VIRUSKY
THOMAS FRANK LUSBY, II	JAMES H. WALKER

*Degree conferred September, 1940.

LESTER AUBREY WALL, JR.
DAYTON O'LANDER WATKINS
JOHN BERNARD WELLS, JR.
THOMAS CARROLL WILDER

EDWIN F. WILSON, JR.
KAZUO YANAGISAWA
JOHN DAVID YOUNG, JR.
KENNETH LEVIE ZIERLER

SCHOOL OF NURSING

Graduate in Nursing

RUTH ELLA ALMONY
CHARLOTTE SUE BARKDOLL
RUTH FERRELL CHESSON
ELIZABETH STELLA CLARKE
MARGARET BERNICE EDMUNDSON
FLORA ELIZABETH EVANS
MILDRED ELIZABETH FOSTER
NELL URBANNA HAMMER
PHYLLIS JEANNE HEINTZ
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JUDY LILES
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CATHERINE LORRAINE NEEL
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ETTA MAE SHAVER
EDNA VIRGIE SIMMONS
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PHILENA SUE WILSON
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CAROLYN DORIS ZELLER

SCHOOL OF PHARMACY

Bachelor of Science in Pharmacy

FRANCIS IGNATIUS CODD
GEORGE OSCAR DEGELE
MARY ROSULA DIGRISTINE
ALVIN JAY FAINBERG
SAMUEL HARRY GINSBERG
ABRAHAM ELLIS GLASER
LEON GOODMAN
WALTER K. HENDIN
JOHN MAYO JERNIGAN, JR.
REUBEN KAHN
*FRANK THOMAS KASIK, JR.

GEORGE JOSEPH KREIS, JR.
ALBERT LINDENBAUM
*MAURICE VICTOR MAYER
MANUEL MILLER
IRVIN NOVECK
BERNARD ROSENTHAL
OSCAR RUDOFF
MILTON SARUBIN
HAROLD W. SIEGEL
KENNETH GORDON SPANGLER
IRVING F. ZERWITZ

HONORS, MEDALS, AND PRIZES, 1940-41

Elected Members of Phi Kappa Phi, Honorary Society

FRANK JOHN BLAZEK
MILDRED VIRGINIA BODINE
ELEANOR JAYNE BRADLEY
VIRGINIA LOMBARD BROWN

VICTOR CHARLES BUHL
ISABEL REED BUTLER
DOROTHY MAE CAMPBELL
FRANK WILLIAMS CAREY, JR.

*Degree conferred August 2, 1940.

RICHARD ALVAN CLARK
MARY HELEN COOK
LEXEY JANE CRAGIN
LEE SHARP CRIST
WILLIAM KENNETH CUMMING, JR.
ELIZABETH JANE CURTIS
DOROTHY MARIE DAVIS
JORGE DE ALBA
RUTH ESTELLE EVANS
LYDIA FRANCES EWING
BELMONT GREENLEE FARLEY
HOWARD CONRAD FILBERT, JR.
HARRIET LOUISE FRUSH
MARY LYLE GLOTFELTY
CLARA GALE GOLDBECK
LESTER PHILIP GUEST
LAWRENCE HOWARD HASKIN, JR.
HELEN BEATRICE KALBAUGH
BERTHA KATZ
CHARLES FERNAND KSANDA
FRANCES NAOMI LUCAS
FREDERICK CHARLES MAISEL, JR.
JOHN CHESLEY MARZOLF
JOHN ALEXANDER MCCONNACHIE

ARTHUR CHARLES MEHRING
NELLIE MAE NORDWALL
ROBERT DU BOISE RAPPLEYE
ROBERT CULLER RICE
KATHRYN ELAINE RIEDEL
PATRICIA ANN ROYSTER
JOHN JEROME RYAN
HARRIET MILDRED SANDMAN
JEANNE MADELAINE SANTAMARIE
DORIS ELIZABETH SCHUTRUMPF
LEONARD J. SHIELDS
NORMAN HAROLD SILVERMAN
BERNICE STEVENSON
CARL KERBY STODDARD
MILDRED VIRGINIA STUBBS
ALBERT EDWARD TEPPER
MOLLY B. TULIN
GEORGE BRITTON VOGT
ERNEST GUNTHER WAGNER
JOHN MOSS WHITTEN
ARTHUR PAUL WIEDEMER
JULIA WORTH WOODRING
DAVID KUYKENDALL WORGAN

Citizenship Medal, Offered by Dr. H. C. Byrd, Class of 1908
JOHN G. RECKORD

Citizenship Prize, Offered by Mrs. Albert F. Woods
CAROLYN BARNES GRAY

Athletic Medal, Offered by the Class of 1908
ROBERT HERMAN SMITH

Maryland Ring, Offered by Charles L. Linhardt
THOMAS MCCOY FIELDS

Goddard Medal, Offered by Mrs. Annie K. Goddard James
WILLIAM ADDISON HOLBROOK

Sigma Phi Sigma Freshman Medal
THEODORE ALLISON

Delta Delta Delta Sorority Medal
MARGARET SUSAN CLARKE

Medal and Junior Membership, Offered by the American Institute of Chemists

RICHARD ALVAN CLARK

Dinah Berman Memorial Medal, Offered by Benjamin Berman

KENNETH MACMILLAN UGLOW, JR.

Mortar Board Cup

MILDRED VIRGINIA STUBBS

Honor Key, Offered by the Class of 1926 of the School of
Business Administration

NORMAN HAROLD SILVERMAN

Omicron Nu Sorority Medal

IRENE FLORENCE ZALADONIS

Service Award, Offered by the Staff of Office of Dean of Women

LIDA ESTHER SARGEANT

Bernard L. Crozier Award

LAWRENCE JUDSON HODGINS, JR.

American Society of Civil Engineers Award

LAWRENCE JUDSON HODGINS, JR.

Tau Beta Pi Award

ROBERT WELSH RUSSELL

Tau Beta Pi Certificate of Merit

ALDEN ELON IMUS

Alpha Lambda Delta Sorority Award

MILDRED VIRGINIA STUBBS

The Charles B. Hale Dramatic Awards

ALBERT STILLMAN COLEMAN

EARLA BALL MARSHALL

Sigma Alpha Omicron Award

RUTH ESTELLE EVANS

Hillegeist Memorial Award

MOLLY B. TULIN

Edward Powell Lacrosse Trophy

JOHN L. MUELLER

Louis W. Berger Baseball Trophy

WILLIAM HENRY ENGLAND, JR.

The Diamondback Medals

ORVILLE CRESAP SHIREY

JUDSON HARRY BELL

LOLA MARGUERITE MANGUM

TURNER GRAFTON TIMBERLAKE

MARY ANN GRIFFITH

MARY DAWSON HENDERSON

JULIA WORTH WOODRING

CAROLYN BARNES GRAY

The Terrapin Medals

DAVID OKEY JOHNSON

LIDA ESTHER SARGEANT

GERALD EUGENE PRENTICE

WILSON GILLIS INGRAHAM

DONALD STANTON BIERER

JOHN GILROY LUNTZ

EVA BUCHWALD BROOKS

MARY ELIZABETH POWERS

The Old Line Medals

CHARLES FERNAND KSANDA

F. MARGARET WALLACE SCOTT

GEORGE OVERTON KEPHART

WALTER JOSEPH KERWIN

JOSEPH HILLIARY WHITE

Battalion Trophy, Offered by Mahlon N. Haines (1894)

FOURTH BATTALION, COMMANDED BY CADET LT. COL. JOHN CHESLEY MARZOLF

Governor's Drill Cup

COMPANY L, COMMANDED BY CADET CAPTAIN DAVID CLEVELAND KELLY, JR.

Reserve Officers' Association Award

CADET CAPTAIN DAVID CLEVELAND KELLY, JR.

Alumni Cup

THIRD PLATOON, COMPANY G, COMMANDED BY

CADET LIEUTENANT JOHN LEONARD MEAKIN

Scabbard and Blade Cup

THIRD PLATOON, COMPANY G, COMMANDED BY

CADET LIEUTENANT JOHN LEONARD MEAKIN

Military Medal, Offered by the Class of 1899

CADET WILLIAM HAMILTON PINDELL, JR.

Pershing Rifles Medal to Each Member of Winning Squad,

1st Squad, 2nd Platoon, Company F

CADET SERGEANT WILLIAM WELCH

BAGBY

CADET FREDERICK MILLER JOHNSON

CADET EUGENE ARNOLD GOUGH

CADET GEORGE WILSON CAIRNES

CADET AUGUST ERNEST ECKELS, JR.

CADET ALBERT GEORGE GOLDBERG

CADET JOHN EDWARD MCCARTY, JR.

CADET GAIL RAY HOLMES

CADET ROBERT HUGH YEATMAN

CADET FRED I. EDWARDS

CADET ROBERT HAROLD BENSON

CADET ROBERT BARTON WILLIS

**Third Corps Area Intercollegiate Rifle Match
Championship Medals, First Place**

CADET JAMES ATKINS CLARK	CADET ULRICH ALOYSIUS GELLER
CADET LAWRENCE HOWARD HASKIN	CADET PAUL WOOLEVER NEWGARDEN
CADET JOHN CHESLEY MARZOLF	CADET RAYMOND LOUIS HODGES
CADET ALDEN ELON IMUS	CADET ROBERT HAROLD BENSON
CADET ROBERT DELAFIELD RANDS, JR.	CADET ROBERT MATTHEW RIVELLO

National Intercollegiate Rifle Match Championship, Medals for Fourth Place

CADET ULRICH ALOYSIUS GELLER	CADET LAWRENCE HOWARD HASKIN
CADET RAYMOND LOUIS HODGES	CADET ROBERT MATTHEW RIVELLO
CADET ALDEN ELON IMUS	CADET JAMES ATKINS CLARK
CADET WILLIAM ALEXANDER REITH	CADET JOSEPH MURRAY DECKER
CADET PAUL WOOLEVER NEWGARDEN	CADET ROBERT DELAFIELD RANDS, JR.

**Military Department Gold Medal to Individual Firing High Score
on Varsity Rifle Team**

CADET ALDEN ELON IMUS

**Military Department Gold Medal to Individual Firing High Score
on Freshman Team**

CADET DORSEY MEREDITH OWINGS

**Col. R. E. Wysor Medals to Individuals Firing High Average
Score on Varsity Rifle Team**

CADET ALDEN ELON IMUS, High Average
CADET ULRICH ALOYSIUS GELLER, Second High Average
CADET FLETCHER HUDSON JONES, JR., Third High Average

**Col. R. E. Wysor Medals to Individuals Firing High Average
Score on Freshman Rifle Team**

CADET DORSEY MEREDITH OWINGS, High Average
CADET JOSEPH MURRAY DECKER, Second High Average
CADET CLIFTON BRADFORD CURRIN, Third High Average

Gold Medal to Individual Winning the Mehring Trophy Rifle Competition

CADET ALDEN ELON IMUS

A. L. Mehring All-American Silver Medal for Rifle Competition

CADET WILLIAM ALEXANDER REITH

**District of Columbia Marine Corps Rifle Club Championship,
Medals for Second Place**

CADET ULRICH ALOYSIUS GELLER, Second High Individual
CADET ROBERT WYNNE LAUGHEAD, Third High Individual
CADET WILLARD CECILLIUS JENSEN
CADET ALDEN ELON IMUS
CADET PAUL WOOLEVER NEWGARDEN

Felt Shields to Members of the R. O. T. C. Rifle Team and Managers for Rifle

CADET JAMES ATKINS CLARK	CADET FRANK GILBERT CARPENTER
CADET LAWRENCE HOWARD HASKIN	CADET GUY HOWARD GOODMAN, JR.
CADET JOHN CHESLEY MARZOLF	CADET WILLIAM ALEXANDER REITH
CADET ALDEN ELON IMUS	CADET DORSEY MEREDITH OWINGS
CADET ROBERT DELAFIELD RANDS, JR.	CADET JOSEPH MURRAY DECKER
CADET ULRICH ALOYSIUS GELLER	CADET JOHN FRANCIS CONLON
CADET PAUL WOOLEVER NEWGARDEN	CADET STANLEY MORRIS WHALEN
CADET RAYMOND LOUIS HODGES	CADET LACY HALL
CADET ROBERT HAROLD BENSON	CADET CLIFTON BRADFORD CURRIN
CADET ROBERT MATTHEW RIVELLO	

**WAR DEPARTMENT AWARD OF COMMISSIONS AS SECOND
LIEUTENANT OR CERTIFICATE OF CAPACITY AS SECOND
LIEUTENANT IN THE OFFICERS' RESERVE CORPS**

JOHN NORMAN BAUERNSCHMIDT	BOBBY LEE JONES
JAMES MONROE BEATTIE	DAVID CLEVELAND KELLY, JR.
WILLIAM KENDIG BRENDLE	EDWARD MELVIN LLOYD
ELMER FRANCIS BRIGHT	FREDERICK CHARLES MAISEL, JR.
JAMES BRADFORD BURNSIDE	DONALD POWELL MARSHALL
JACK FOSTER CHERRY	JOHN CHESLEY MARZOLF
RICHARD ALVAN CLARK	RICHARD CHARLES MCDEVITT
CARL ALBERT CLINE, JR.	WILLIAM EDWIN MCMAHON, II
JOHN LYNWOOD CRONE	JOHN LEONARD MEAKIN
RALPH FROST CRUMP	NORMAN ALBERT MILLER, JR.
JOHN DOUGLAS CUSTER	ALLEN VOGEL MINION
HUGH GIFFORD DOWNS, JR.	DONALD SPOERER ONNEN
DAVID GEORGE DRAWBAUGH, JR.	MICHAEL PENNELLA
FRANK ARTHUR DWYER, JR.	JOHN MARVIN POWELL
JAMES ROBERT FINTON	JOSEPH HOWARD RANDALL
WILLIAM FRANCIS GANNON	ROBERT DUBOIS RAPPLEYE
FRANCIS WARNER GLAZE, JR.	JOHN GEKLER RECKORD
JOHN FRANCIS GREENIP	RICHARD CARLTON SAVAGE REID
ROBERT ASHBY GROVES, JR.	ALVIN BLAIR RICE
VADEN JONES HADDAWAY, JR.	ROBERT CULLER RICE
DANIEL JULIUS HARWOOD	HENRY JACOB ROCKSTROH
ELLIOTT BROOKE HARWOOD	JOHN JEROME RYAN
LAWRENCE HOWARD HASKIN, JR.	ROBERT WARFIELD SAUM
THOMAS ELDON HITCH	LEONARD TREHERNE SCHROEDER, JR.
LAWRENCE JUDSON HODGINS, JR.	PAUL OTTO SIEBENEICHEN
ARTHUR WARREN MAX HORN	NORMAN HAROLD SILVERMAN
ALDEN ELON IMUS	RICHARD TINNEY SKEEN
WILLIAM PURNELL JOHNSON	SAMUEL CLOKE STREEP
NELSON RIEDE JONES	WILLIAM JACK SUIT

WORTHINGTON HEATON TALCOTT
HERMAN ALEXANDER TAPPER
GINO VALENTI
ERNEST GUNTHER WAGNER
CHARLES WILSON WANNAN, JR.

THOMAS EUGENE WATSON, JR.
JACK EDWARD WEBER
ROBERT RAMSAY WESTFALL
STANLEY MORRIS WHALEN

HONORABLE MENTION

College of Agriculture

First Honors—HOWARD MILTON GROSS, VIRGINIA LOMBARD BROWN, ROBERT
DUBOIS RAPPLEYE, JORGE DE ALBA M., LEXEY JANE CRAGIN.
Second Honors—JOHN JEROME RYAN, LEE SHARP CRIST, J. THOMAS REID,
HILDE MARIE CHRISTENSEN, RUTH SUZANNE PUNNETT,
JACK EDWARD WEBER, MARYAN SINGLETON DONN.

College of Arts and Sciences

First Honors—JOHN MOSS WHITTEN, BELMONT GREENLEE FARLEY, DOR-
OTHY MAE CAMPBELL, ELIZABETH JANE CURTIS, RICHARD
ALVAN CLARK, JULIA WORTH WOODRING, BERTHA KATZ,
KATHRYN ELAINE RIEDEL, DAVID KUYKENDALL WORGAN,
ELEANOR JAYNE BRADLEY, LYDIA FRANCES EWING, CLARA
GALE GOLDBECK, MOLLY B. TULIN, FRANK I. DAVIS, JR.
Second Honors—GEORGE C. EVERING, PATRICIA ANN ROYSTER, HARRIET
MILDRED SANDMAN, RUTH ESTELLE EVANS, CHARLES
FERNAND KSANDA, MARJORIE ELIZABETH HALL, ORR ESREY
REYNOLDS, WARREN DANIEL BRILL, EDITH ANN CHRISTEN-
SEN, DANIEL JULIUS HARWOOD, BARBARA ANN RICHMOND,
MARTHA PUTNAM MERIAM, IRVING MADORSKY.

College of Commerce

First Honors—NORMAN HAROLD SILVERMAN, ERNEST GUNTHER WAGNER,
LEONARD J. SHIELDS, ROBERT CULLER RICE, FRANK
WILLIAMS CAREY, JR.
Second Honors—GEORGE OVERTON KEPHART, RALPH WYLIE FREY, JR.,
GEORGE AUGUST WALDEMAR JANSSON, JR., FRANKLIN
KELLOGG PEACOCK, BERT WINFRIED ANSPON, JR.

College of Education

First Honors—MILDRED VIRGINIA STUBBS, MARY LYLE GLOTFELTY,
WILLIAM KENNETH CUMMING, JR., HELEN BEATRICE KAL-
BAUGH, MILDRED VIRGINIA BODINE, ISABEL REED BUTLER,
FRANCES NAOMI LUCAS.
Second Honors—FREDERICK CHARLES MAISEL, JR., JACK STEALTON BIERLY,
CAROLYN BARNES GRAY, JUDSON HARRY BELL, JANE CLARE
OWINGS, PAUL YAFFE.

College of Engineering

First Honors—HOWARD CONRAD FILBERT, JR., JOHN CHESLEY MARZOLF,
VICTOR CHARLES BUHL, FRANK JOHN BLAZEK, ARTHUR
CHARLES MEHRING, LAWRENCE HOWARD HASKIN, JR.
Second Honors—THOMAS EUGENE WATSON, JR., JOHN MERRIKEN CARTER,
ALDEN ELON IMUS, LAWRENCE JUDSON HODGINS, JR.,
DONALD SPOERER ONNEN.

College of Home Economics

First Honors—BERNICE STEVENSON, MARY HELEN COOK, DORIS ELIZABETH
SCHUTRUMPF, DOROTHY MARIE DAVIS.
Second Honors—JEANNE MADELAINE SANTAMARIE, DAPHNE REYNOLDS.
MARGARET WEIL.

School of Dentistry

University Gold Medal for Scholarship
GEORGE REUSCH

Certificates of Honor

STERRETT PATTERSON BEAVEN DONALD TIEMEYER FREY
WARREN DUNNING HAGGERTY, JR. STANLEY HELLER
FREDERICK BERNARD RUDO

School of Law

Elected to the Order of the Coif

CHARLES CHESTER WILSON ATWATER ROBERT MARTIN GOLDMAN
RICHARD BERTRAM BRENNER WILLIAM JOSEPH O'DONNELL
JOHN EDWARD RAINE, JR.

Alumni Prize for the Best Argument in the Honor Case in the Practice Court
AUGUSTUS FREEBORN BROWN, III

George O. Blome Prizes to Representatives on the Honor Case
in the Practice Court

AUGUST FREEBORN BROWN, III WILLIAM JOSEPH O'DONNELL
JOHN J. GHINGHER, JR. HALL EVERETT TIMANUS

School of Medicine

University Prize Gold Medal
JAMES STANLEY HUNTER, JR.

Certificates of Honor

MARGARET VIRGINIA PALMER GEORGE JOHN ULRICH
NORVAL FOARD KEMP LESTER AUBREY WALL, JR.
JOSE S. LICHIA RAYMOND KIEF THOMPSON

THE UNIVERSITY OF MARYLAND

The Dr. A. Bradley Gaither Memorial Prize of \$25.00 for the Best Work in Genito-Urinary Surgery During the Senior Year

RAYMOND NASIF MALOUF

School of Nursing

The Janet Hale Memorial Scholarship, given by the University of Maryland Nurses' Alumnae Association, to Pursue a Course in Administration, Supervisory, or Public Health Work at Teachers College, Columbia University, to the Student Having the Highest Average in Scholarship

ELIZABETH LOUISE WOLFE

The Elizabeth Collins Lee Prize to the Student Having the Second Highest Average in Scholarship

NELL URBANNA HAMMER

The Mrs. John L. Whitehurst Prize for the Highest Average in Executive Ability

CAROLYN DORIS ZELLER

The Edwin and Leander M. Zimmerman Prize for Practical Nursing and for Displaying the Greatest Interest and Sympathy for the Patients

CAROLYN DORIS ZELLER

The University of Maryland Nurses' Alumnae Association Pin and Membership in the Association, for Practical Nursing and Executive Ability

CHARLOTTE LEE MATTHEWS

School of Pharmacy

The Conrad L. Wich Botany and Pharmacognosy Prize

ALVIN JAY FAINBERG

SUMMARY OF STUDENT ENROLLMENT

For the Academic Year 1941-1942 as of April 1942

Resident Collegiate Courses—	College			
Academic Year:	Park	Baltimore	Total	
College of Agriculture	415	.....	415	
College of Arts and Sciences....	1,126	.....	1,126	
College of Commerce.....	404	.....	404	
College of Dentistry .....	.....	364	364	
College of Education	598	276	871 (3 dupl.)	
College of Engineering	734	.....	734	
Graduate School	379	94	460 (13 dupl.)	
College of Home Economics.....	288	.....	288	
School of Law .....	.....	175	175	
School of Medicine .....	.....	380	380	
School of Nursing .....	.....	148	148	
School of Pharmacy .....	.....	124	124	
Total	3,944	1,561	5,489	
Summer School, 1941	1,244	93	1,337	
Grand Total	5,188	1,654	6,826	
Duplications	461	70	604 (+16 above)	
Total Less Duplications	4,727	1,584	6,222	
Education Subcollegiate .....	.....	.....	130	
Mining Courses, Western Maryland .....	.....	.....	226	
Engineering, Defense Extension .....	.....	.....	2,030	
Short Courses and Conferences:				
Atlantic Grange Lecturers' Conference .....	.....	.....	288	
Boys 'and Girls' Club Week .....	.....	.....	573	
Canning Crop School .....	.....	.....	200	
Cattle Feeders' Day .....	.....	.....	100	
Dahlia Field Day .....	.....	.....	20	
Educational Advisors' Conference C. C. C. ....	.....	.....	73	
Farm Dairying Short Course .....	.....	.....	25	
Fertilizer Manufacturers' Conference .....	.....	.....	52	
Garden School .....	.....	.....	60	
Greenkeepers Short Course .....	.....	.....	37	
Guernsey Breeders' Field Day .....	.....	.....	90	
Horticulture Short Course .....	.....	.....	37	
Milk Testers' Short Course .....	.....	.....	7	
Northeastern States Vegetable Variety Trials and	.....	.....
Vegetable Breeding Conference .....	.....	.....	96	
Nurserymen's Short Course .....	.....	.....	85	
Nutrition Institute .....	.....	.....	80	
Poultry Short Course .....	.....	.....	26	
Rural Women's Short Course .....	.....	.....	786	
School Administrators' Conference .....	.....	.....	140	
State Parent-Teacher Conference .....	.....	.....	127	
Volunteer Firemen .....	.....	.....	311	
Total Short Courses and Conferences.....	.....	.....	3,213	
Grand Total, All Courses, Baltimore and College Park,	.....	.....
less duplications .....	.....	.....	11,821	

EXTENSION SERVICE



EXTENSION WORKERS' CREED

I love the big out-of-doors; the smell of the soil; the touch of the rain; the smile of the sun; the kiss of the wind; the song of the birds and the laughter of the summer breezes in the trees.

I love the growing crops; the rustle of the corn; the golden billow of the ripening wheat; the fleecy cotton bursting from the boll; the musky odor of the ripening fruit and the shimmer of the grass that is blue.

I love God's creatures, great and small, that minister to man's needs; the friendship of the horse; the confidence of the sheep; the gentleness of the cow and the contented confidence of the fattening swine. These represent the response of service to kindness and care.

BECAUSE I LOVE THESE THINGS

I believe in the open country and the life of country people; in their hopes, their aspirations and their simple faith; in their ability and power to enlarge their own lives and plan for the happiness of those that they love.

I believe in the farmer as the Nation's sure defense; the reservoir of its prosperity; its haven of security from those who would despoil it from within or without.

I believe in the farmer's right to a comfortable living; to such recompense for his capital and labor and skill as will make him the peer of those who work in office, shop or mine; in his right to co-operate with his neighbors for the security of his business life and in the helping service science sends as handmaid to his common sense.

I believe in the sacredness of the farmer's home; in the holiness of the country woman's love and the opportunity that home should assure to culture, grace and power.

I believe in the country boy and girl; in their longings for opportunity; their right to trained minds, healthy bodies and clean hearts, and to the country's call and claim to their service.

I believe in my own work; the opportunity it offers to be helpful; in its touch of human sympathy and its joy of common fellowship.

I believe in the public institutions of which I am a part; of their right to my loyalty and my enthusiasm in extending the established principles and ideals of those who seek and find the truth.

I believe in myself; in humility, but with sincerity of purpose, I offer to work with country man, woman and child in making the farm prosperous, the country home comfortable and beautiful; the rural community satisfying and my own life useful.

BECAUSE I LOVE THESE THINGS AND BELIEVE THESE THINGS, I
AM AN EXTENSION WORKER.

SECTION V

Agricultural Extension, Research and Regulatory Agencies

EXTENSION SERVICE

ADMINISTRATIVE STAFF

College Park

THOMAS BADDELEY SYMONS, M.S., D.Agr., Dean, College of Agriculture,
Director.

EDWARD INGRAM OSWALD, B.S., Professor, Assistant Director.

VENIA MERIE KELLAR, B.S., Professor, Assistant Director.

ERNEST NEAL CORY, Ph.D., Professor, Extension Entomology, State Entomologist, Assistant Director.

ADDISON HOGAN SNYDER, B.S., Professor, Editor.

PAUL EDWIN NYSTROM, M.S., Associate Professor, County Agent Leader.

EDWARD GARFIELD JENKINS, Associate Professor, Boys' Club Leader.

DOROTHY EMERSON, Associate Professor, Girls' Club Leader.

FLORENCE HARRIETT MASON, B.S., Associate Professor, Extension Home Furnishing, District Agent.

KATHERINE GRACE CONNOLLY, Administrative Assistant.

OMER RAYMOND CARRINGTON, B.A., Assistant Professor, Illustrator.

SUBJECT MATTER SPECIALISTS

GEORGE JENVEY ABRAMS, M.S., Assistant Professor, Extension Apiculture.

ARTHUR MONTRAVILLE AHALT, M.S., Assistant Professor, Extension Agricultural Education.

WALTER RAYMOND BALLARD, B.S., Associate Professor, Extension Vegetable and Landscape Gardening.

HOWARD CLINTON BARKER, B.S., Professor, Extension Dairy Husbandry.

WALTER CROTHERS BEAVEN, Ph.B., Associate Professor, Extension Marketing.

HERBERT RODERICK BIRD, Ph.D., Associate Professor, Extension Poultry Nutrition.

RAY WILFORD CARPENTER, A.B., LL.B., Professor, Extension Agricultural Engineering, State Drainage Engineer.

JOHN ALFRED CONOVER, B.S., Associate Professor, Extension Dairy Husbandry.

JOHN COTTON, B.S., Assistant Professor, Extension Soil Erosion.

CARROLL EASTBURN COX, M.S., Instructor, Extension Plant Pathology.

SAMUEL HENRY DeVULT, Ph.D., Professor, Extension Agricultural Economics.

LINDEN SEYMOUR DODSON, Ph.D., Assistant Professor, Extension Sociology.

LAWRENCE ELDEN DOWNEY, M.S., Assistant Professor, Extension Marketing.
MYLO SNAVELY DOWNEY, B.S., Assistant Professor, Extension Boys' Club Work.

CASTILLO GRAHAM, Ph.D., Assistant Professor, Extension Entomology.

*JAMES MARTIN GWIN, B.S., Associate Professor, Extension Egg Marketing.

WILLIAM EDGAR HARRISON, Assistant, Extension Marketing.

RUSSELL CHENEY HAWES, B.S., Professor, Extension Marketing.

HERMAN AULL HUNTER, M.S., Associate Professor, Extension Canning Crops.

WALTER FULTON JEFFERS, Ph.D., Instructor, Extension Plant Pathology.

ROBERT ANDREW JEHLE, Ph.D., Professor, Extension Plant Pathology, State Pathologist.

MORLEY ALLAN JULL, Ph.D., Professor, Extension Poultry Husbandry.

WILLIAM BECK KEMP, Ph.D., Professor, Extension Agronomy.

ALBERT VICTOR KREWATCH, M.S., E.E., Associate Professor, Extension Rural Electrification.

ALBIN OWINGS KUHN, M.S., Assistant Professor, Extension Agronomy.

GEORGE SHEALY LANGFORD, Ph.D., Associate Professor, Extension Entomology.

JOHN WINFIELD MAGRUDER, M.S., Associate Professor, Extension Agronomy.

ARTHUR F. MARTIN, B.S., Assistant Professor, Marketing.

MARGARET MCPHEETERS, M.S., Associate Professor, Extension Nutrition.

DEVUE MEADE, Ph.D., Professor, Extension Animal Husbandry.

CHARLES PERCIVAL MERRICK, B.S., Assistant Professor, Extension Drainage Engineering.

JAMES BURTON OUTHUSE, B.S., Assistant Professor, Extension Animal Husbandry.

CALVIN PLATT POPPELL, Assistant Professor, Extension Marketing.

WALTER BENJAMIN POSEY, M.S., Associate Professor, Extension Tobacco.

HARLAN RANDALL, B.Mus., Assistant Professor, Extension Music.

WADE HAMPTON RICE, B.S., Associate Professor, Extension Poultry Husbandry.

FRANKLIN KIRK SAMPSON, Assistant Professor, Extension Marketing.

ALBERT LEE SCHRADER, Ph.D., Professor, Extension Pomology.

STEWART BAKER SHAW, B.S., Professor, Extension Marketing, Chief State Department of Markets.

HELEN SHELBY, M.S., Associate Professor, Extension Clothing.

MARK MERCER SHOEMAKER, A.B., M.L.D., Associate Professor, Extension Landscape Gardening.

ALSTON WESLEY SPECHT, M.S., Instructor, Extension Agronomy.

ARTHUR SEARLE THURSTON, M.S., Professor, Extension Landscape Gardening.

HOWARD JOHN TWILLEY, B.S., Assistant Professor, Extension Marketing.

JOSEPH MCNAUGHTON VIAL, B.S., Professor, Extension Animal Husbandry.

*On leave 1942-1943.

ALBERT FRANK VIERHELLER, M.S., Associate Professor, Extension Horticulture.
 RUFUS HENRY VINCENT, B.S., Instructor, Extension Entomology.
 EARNEST ARTMAN WALKER, Ph.D., Assistant Professor, Extension Plant Pathology.
 EDGAR PERKINS WALLS, Ph.D., Professor, Extension Canning Crops.
 FORREST BROOKES WHITTINGTON, M.S., Assistant Professor, Extension Entomology.
 CHARLES SIMPSON WILLIAMS, B.S., Instructor, Extension Poultry Husbandry.
 CALLENDER FAYSSOUX WINSLOW, A.B., M.F., Assistant Professor, Extension Forestry.
 *LELAND GRIFFITH WORTHINGTON, B.S., Instructor, Extension General Education.

COUNTY AGENTS (Field)

County	Name	Headquarters
Allegany	RALPH FRANK MCHENRY, B.S., Associate Professor,	Cumberland
Anne Arundel	STANLEY EVERETT DAY, B.S., Associate Professor,	Annapolis
Baltimore	HORACE BENNETT DERRICK, B.S., Associate Professor,	Towson
Calvert	JOHN BOOME MORSELL, B.S., Assistant Professor,	Prince Frederick
Caroline	GEORGE WATSON CLENDANIEL, B.S., Associate Professor,	Denton
Carroll	LANDON CRAWFORD BURNS, B.S., Associate Professor,	Westminster
Cecil	JAMES ZENUS MILLER, B.S., Assistant Professor,	Elkton
Charles	PAUL DENNIS BROWN, B.S., Associate Professor,	La Plata
Dorchester	† WILLIAM RUSSELL MCKNIGHT, B.S., Associate Professor,	Cambridge
Frederick	HENRY REESE SHOEMAKER, B.S., M.A., Associate Professor,	Frederick
Garrett	JOHN HURLEY CARTER, B.S., Assistant Professor,	Oakland
Harford	HENRY MORRISON CARROLL, B.S., Associate Professor,	Bel Air
Howard	WARREN GRAHAM MYERS, B.S., Assistant Professor,	Ellicott City
Kent	JAMES DUNHAM McVEAN, B.S., Associate Professor,	Chestertown
Montgomery	OTTO WATSON ANDERSON, M.S., Associate Professor,	Rockville

*On military leave.

†On military leave.

Prince Georges.....PERCY ELLSWORTH CLARK, B.S., Assistant Professor,
 Upper Marlboro
 Queen Annes.....MARK KERMIT MILLER, B.S., Assistant Professor,
 Centerville
 St. Marys.....JOSEPH JULIUS JOHNSON, Assistant Professor,
 Leonardtown
 Somerset.....CLARENCE ZEIGLER KELLER, B.S., Associate Professor,
 Princess Anne
 Talbot.....RUDOLPH STOCKSDALE BROWN, B.S., Associate Professor,
 Easton
 Washington.....MILTON DONALDSON MOORE, M.S., Associate Professor,
 Hagerstown
 Wicomico.....JAMES PAUL BROWN, B.S., Assistant Professor.....Salisbury
 Worcester.....ROBERT THORNTON GRANT, B.S., Associate Professor,
 Snow Hill

ASSISTANT COUNTY AGENTS

Allegany and
 Washington.....HARRY WESLEY BEGGS, B.S., Instructor.....Cumberland
 Baltimore.....JOHN WHEELER ENSOR, B.S., Instructor.....Towson
 Harford.....WALTER SHERARD WILSON, B.S., Instructor.....Bel Air
 Kent.....STANLEY BURR SUTTON, Instructor.....Chestertown
 Montgomery.....RUFUS BACHER KING, A.B., Instructor.....Rockville
 Carroll and
 Frederick.....CHESTER MARVIN CISELL, B.A., Instructor.....Frederick
 Dorchester.....*CHARLES FULLER, M.S., Instructor.....Cambridge
 Queen Annes.....JAMES WALTER EBY, B.S., Instructor.....Centerville

LOCAL AGENTS—NEGRO WORK

Southern

Maryland.....MARTIN GREEN BAILEY, B.S., Instructor.....Seat Pleasant
 Eastern Shore.....LOUIS HENDERSON MARTIN, Instructor.....Princess Anne

COUNTY HOME DEMONSTRATION AGENTS (Field)

County	Name	Headquarters
Allegany	MAUDE ALBERTA BEAN, Associate Professor	Cumberland
Anne Arundel	FRANCES E. BEEGLE, B.S., Assistant Professor	Annapolis
Baltimore	ANNA TRENTAM, B.S., Associate Professor	Towson
Calvert	FLORENCE E. BUCHANAN, B.S., Associate Professor,	Prince Frederick
Caroline	BESSIE MARGUERITE SPAFFORD, B.S., Associate Professor,	Denton
Carroll	ADELINE MILDRED HOFFMAN, M.A., Assistant Professor,	Westminster

*Acting County Agent.

Cecil.....	HELEN IRENE SMITH, B.A., Associate Professor.....	Elkton
Charles.....	MARY GRAHAM, Associate Professor.....	La Plata
Dorchester.....	HATTIE ESTELLA BROOKS, A.B., Associate Professor,	
	Cambridge	
Frederick.....	FLORENCE ELIZABETH WILLIAMS, B.S., Associate Professor,	
	Frederick	
Garrett.....	MARIANNA LEE LONG, B.A., Assistant Professor.....	Oakland
Harford.....	CATHARINE MAURICE, B.S., Associate Professor.....	Bel Air
Howard.....	MILDRED JANE FLANAGAN, B.S., Assistant Professor,	
	Ellicott City	
Kent.....	HELEN NICKERSON SCHELLINGER, Associate Professor,	
	Chestertown	
Montgomery.....	EDYTHE MARGARET TURNER, Associate Professor.....	Rockville
Prince Georges.....	ETHEL MARY REGAN, Associate Professor.....	Hyattsville
Queen Annes.....	HELEN MARIE HARNER, B.S., Assistant Professor,	
	Centreville	
St. Marys.....	ETHEL JOY, A.B., Assistant Professor.....	Leonardtwn
Somerset.....	HILDA TOPFER, B.S., Assistant Professor.....	Princess Anne
Talbot.....	MARGARET SMITH, B.S., Associate Professor.....	Easton
Washington.....	ARDATH ELLEN MARTIN, B.S., Associate Professor,	
	Hagerstown	
Wicomico.....	ESTHER WEIGHTMAN BOWER, M.S., Assistant Professor,	
	Salisbury	
Worcester.....	LUCY JANE WALTER, Associate Professor.....	Snow Hill
Assistant County Home Demonstration Agents		
Allegany.....	MARGARET THOMSON LOAR, B.S., Instructor.....	Cumberland
Baltimore.....	MARY ELIZABETH HAHN, B.S., Instructor.....	Towson
Local Home Demonstration Agents—Negro Work		
Southern		
Maryland.....	ETHEL LAWRENCE BIANCHI, B.S., Instructor,	
	Seat Pleasant	
Eastern Shore.....	SIBYL E. NANCE, Instructor.....	Princess Anne

EXTENSION SERVICE

T. B. SYMONS, *Director*

KATHERINE CONNOLLY, *Administrative Assistant*

ELSIE G. LINKOUS, *Secretary to Director*

Cooperative Extension work in agriculture and home economics, established by State and Federal Laws in 1914, is designed to assist farmers and their families in the problems of agriculture and rural homes. Most of the work is carried on in the local communities, on the farms and in the homes throughout the State. It is conducted under a Memorandum of Understanding between the Extension Service of the University of Maryland and the U. S. Department of Agriculture.

The Federal Government, the State and the Counties contribute to the support of the Extension Service in Maryland. There is a County Extension Service in each county, with a County Agent and Home Demonstration Agent in charge, and assistants where funds permit and the work requires. Backed by a staff of Specialists at the University, these Agents are in close contact with rural people and their problems. There are tremendous demands for expansion at present, as a result of the war. Various programs of the Department of Agriculture are launched by the County Agents. They are working closely with the County War Boards, serving as executive secretaries in carrying on war activities.

Practically every phase of agriculture and rural home life comes within the scope of extension work. The Extension Service teaches largely by demonstrations and carries the scientific and economic results of the Department of Agriculture and Experiment Stations to rural people in ways that they understand and use.

All group and general education essential to understanding the so-called action programs arranged recently by the Department of Agriculture is a responsibility of the Extension Service. It is in best position to handle some of the special war tasks that involve education, organization, and other work.

In Maryland, the Extension Service works in close association with all rural organizations. It assists especially in promoting better marketing of farm products and encourages the marketing of home supplies by rural women. Work with rural women is one of the most extensive phases of extension education, including both the practical problems of the home and the cultural, economic, and community activities in which present-day women are engaging.

In addition to work with adults, thousands of boys and girls are developed as leaders and given practical education through the 4-H clubs. Through their diversified activities, the boys and, girls are given a valuable type of instruction and training and afforded an opportunity to develop self-confidence, perseverance, and citizenship.

EXTENSION SHORT COURSES

Rural Women's Short Course

In response to requests of rural women for special training in a variety of subjects the Rural Women's Short Course was inaugurated in 1922. It has been conducted under the auspices of the Home Demonstration Department of the Extension Service. The attendance at the course, extending for one week, has steadily grown, reaching more than one thousand women at the last session, taxing the facilities at the University. The course has been given about the second week in June for the past nineteen years.

Canners' Short Course

Fourteen years ago there developed a demand from the canners of the State for a Short Course designed especially to aid them in the fundamentals of the industry. A good attendance from Maryland and adjoining states is always registered. It is given by the Horticultural Department, usually the third week in February.

Nurserymen's Short Course

A few years ago the organized nurserymen of the State requested a short course covering problems of their business. The lectures and demonstrations reflect advanced technique in production of nursery stock and control of insect pests and disease. It is given by the Departments of Horticulture, Entomology and Pathology.

Greenkeepers' Short Course

The annual Greenkeepers' Course was inaugurated to meet requests of golf course managers for assistance in the problems incident to maintaining grass generally and golf greens in particular. A number of out-of-state managers and assistants register each year. The course is usually given in February.

Gardening Short Course

In order to meet the requests of a large number of people for assistance in gardening, a special two-day course was offered several years ago. The work given discusses up-to-date varieties of flowers and vegetables, soil treatment and control of pests. It is given by the Horticultural Department each year in March.

Florists' Short Course

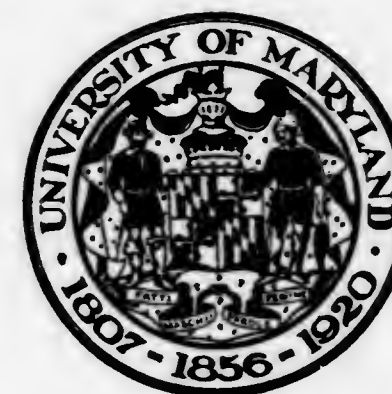
In the latter part of March or first of April each year a special short course is given for the benefit of florists. The course usually extends two days, with a special evening feature held in the Coliseum for the display of flower decorations and a style revue.

Boys' and Girls' Club Week

From 500 to 600 4-H Club boys and girls attend a conference of leaders from all sections of the State at the University. Class work and demonstrations are given by specialists in various phases of club work. The course extends over a week and is usually given the latter part of August.

Farm Labor Short Courses

Special arrangements were made during the past year, in response to the U. S. Women's Volunteer Service, for practical short courses in gardening, fruit growing, poultry and dairying. These courses were designed to familiarize women with practical work in these respective fields. They were given two days a week for four weeks, and were designed to aid in the farm labor situation.

**EXPERIMENT
STATION**

*To read textbooks is easy, but
to do research work is to grapple,
inch by inch, with the obscure,
and battle, step by step, with the
unknown.*

—Victor Robinson.

AGRICULTURAL EXPERIMENT STATION STAFF

ROGER BAILEY CORBETT, Ph.D. Director

Agricultural Economics:

SAMUEL HENRY DEVALT, Ph.D. Professor, Agricultural Economics

WILLIAM PAUL WALKER, M.S., Associate Professor, Agricultural Economics

ARTHUR BRYAN HAMILTON, M.S.,

Assistant Professor, Agricultural Economics

ARTHUR MONTRAVILLE AHALT, M.S.,

Assistant Professor, Agricultural Education

ROGER FRANKLIN BURDETTE, M. S. Assistant, Agricultural Economics

PAUL ROUTZAHN POFFENBERGER, M.S. Instructor, Agricultural Economics

Agricultural Engineering:

RAY WILFORD CARPENTER, A.B., LL.B.,

Professor, Agricultural Engineering, State Drainage Engineer

GEORGE JOHN BURKHARDT, M.S.,

Associate Professor, Agricultural Engineering

ALBERT VICTOR KREWATCH, M.S., E.E.,

Associate Professor, Agricultural Engineering

Agronomy:

WILLIAM BECK KEMP, Ph.D. Professor, Agronomy

RUSSELL GROVE ROTHGEB, Ph.D. Associate Professor, Agronomy

ROYLE PRICE THOMAS, Ph.D. Professor, Soils

HOWARD BARR WINANT, M.S. Assistant Professor, Soils

GEORGE FRANCIS MADIGAN, Ph.D. Assistant Professor, Soils

ALBIN OWINGS KUHN, M.S. Assistant Professor, Agronomy

ALFRED DAMON HOADLEY, Ph.D. Assistant, Agronomy

ALBERT WESTLE WOODS, B.S. Instructor, Agronomy

STANLEY PHILLIPS STABLER, B.S. Assistant, Agronomy

ALBERT WHITE, B.S. Assistant, Agronomy

Animal Husbandry:

FREDERICK HAROLD LEINBACH, Ph.D. Professor, Animal Husbandry

DEVOR MEADE, Ph.D. Professor, Animal Husbandry

JAMES OUTHUSE, M.S. Instructor, Animal Husbandry

Animal Pathology:

MARK FREDERICK WELSH, B.S., D.V.M.,

Professor, Veterinary Medicine, State Veterinarian

HAROLD MOON DEVOLT, M.S., D.V.M. Associate Professor, Pathology

LEO JOSEPH POELMA, M.S., D.V.M. Associate Professor, Pathology

MORTON MOSES RABSTEIN, V.M.D. Instructor, Pathology

CLYDE BEAN, D.V.M. Cooperative Agent, Pathology

Bacteriology:

LAWRENCE HENRY JAMES, Ph.D. Professor, Bacteriology

MICHAEL JOSEPH PELCZAR, Ph.D. Instructor, Bacteriology

GEORGE WILLIAM EASTMENT Assistant, Bacteriology

Botany, Plant Physiology and Pathology:

CHARLES ORVILLE APPLEMAN, Ph.D.,

Professor, Botany and Plant Physiology

JOHN BITTING SMITH NORTON, D.Sc. Professor, Plant Pathology

RONALD BAMFORD, Ph.D. Professor, Botany

ROBERT ANDREW JEHL, Ph.D.,

Professor, Plant Pathology, State Pathologist

RUSSELL GUY BROWN, Ph.D. Assistant Professor, Plant Physiology

HERMAN GERARD DUBUY, Ph.D. Assistant Professor, Plant Physiology

MARK WINTON WOODS, Ph.D. Assistant Professor, Plant Pathology

*HAROLD GEORGE SHIRK, Ph.D. Assistant Professor, Plant Physiology

EARNEST ARTMAN WALKER, Ph.D. Assistant Professor, Plant Pathology

HAROLD FULTON JEFFERS, Ph.D. Instructor, Plant Pathology

CARROLL EASTBURN COX, M.S. Instructor, Plant Pathology

CLIFTON ELWOOD PIERCE, M.S. Instructor, Plant Pathology

WILSON LEVERING SMITH, JR., B.S. Assistant, Plant Pathology

SARAH ELIZABETH WISE, M.S. Assistant, Plant Pathology

Dairy Husbandry:

KENNETH LEROY TURK, Ph.D. Professor, Dairy Husbandry

LANE A. MOORE, Ph.D. Professor, Dairy Husbandry

CHARLES WALTER ENGLAND, Ph.D. Professor, Dairy Manufacturing

MYRON HERBERT BERRY, M.S. Associate Professor, Dairy Husbandry

GLENN HOFFMAN, B.S. Assistant Dairy Inspector

Entomology:

ERNEST NEAL CORY, Ph.D. Professor, Entomology, State Entomologist

HAROLD SLOAN MCCONNELL, M.S. Associate Professor, Entomology

LEWIS POLSTER DITMAN, Ph.D. Assistant Professor, Entomology

GEORGE JENVEY ABRAMS, M.S. Assistant Professor, Apiculture

Horticulture:

CHARLES HAROLD MAHONEY, Ph.D. Professor, Olericulture

ALBERT LEE SCHRADER, Ph.D. Professor, Pomology

EDGAR PERKINS WALLS, Ph.D. Professor, Canning Crops

FRANCIS BUSY LINCOLN, Ph.D. Associate Professor, Plant Propagation

IRVIN CHARLES HAUT, Ph.D. Associate Professor, Pomology

HERMAN AULL HUNTER, M.S. Associate Professor, Canning Crops

*HOWARD LIVINGSTON STIER, Ph.D., Assistant Professor, Horticulture

JACK AMATT, B.S. Instructor, Horticulture

DEAN MANTER BAILEY, M.S. Instructor, Horticulture

CHESTER WOOD HITZ, Ph.D. Assistant, Horticulture

HERMAN TODD, B.S. Assistant, Horticulture

*On military leave.

Poultry:

MORLEY ALLAN JULL, Ph.D.....Professor, Poultry Husbandry
 GEORGE DEWITT QUIGLEY, B.S.....Associate Professor, Poultry Husbandry
 ROBERT EMMETT PHILLIPS, Ph.D.,

Associate Professor, Poultry Husbandry

HERBERT RODERICK BIRD, Ph.D.....Associate Professor, Nutrition

*JAMES MARTIN GWIN, M.S.,

Associate Professor, Poultry Production and Marketing

CHARLES SIMPSON WILLIAMS, M.S.....Instructor, Poultry Husbandry

Seed Inspection:

FORREST SHEPPERSON HOLMES, M.S.....Chief Seed Inspector

JOHN THOMAS MULLADY, B.S.....Analyst

ELLEN PHELPS EMACK.....Analyst

OLIVE MARIAN KELK.....Analyst

THE AGRICULTURAL EXPERIMENT STATION

ROGER B. CORBETT, *Director*

CLARA T. MARTON, *Secretary to Director*

The Agricultural Experiment Stations are for agriculture what the research laboratories are for large corporations. Great corporations pool huge sums of money to finance their operations and can afford to use a percentage of their income for research. Thus the General Electric Company has its "House of Magic" in Schenectady, New York, the DuPont Company has its famous research laboratories, and many other corporations are conducting research. Agriculture is made up of six million small individual businesses, and there is not sufficient capital, or sufficient income so that any one of these businesses can conduct research. Yet the problems which face a biological business such as farming, are as numerous and perplexing as the problems of any business. Certainly our production of food and fibre would be much more costly if it were not for the research results that have been obtained by the agricultural experiment stations.

These stations are for the most part joint Federal and State undertakings. While a number of states had already established experiment stations prior to any Federal action, the passage of the Hatch Act in 1887, which made available a grant in aid to each state for the purpose of establishing an agricultural experiment station, gave a great impetus to the development of research work in agriculture. This work was further encouraged by the passage of the Adams Act in 1906, the Purnell Act in 1925, and the Bankhead-Jones Act in 1935.

The work of the Maryland Agricultural Experiment Station which is supported by these Acts and by State appropriations centers at College Park. On the University campus are to be found laboratories for studying insects

*On military leave.

and diseases, soil fertility problems, botanical problems, and others. This is also the location of the livestock and dairy barns with their experimental herds. About eight miles from the campus at College Park, near Beltsville, is located the Plant Research Farms of about 500 acres, devoted to work connected with soil fertility, plant breeding and general horticultural problems. Near Ridgely, Maryland, is a farm of approximately 50 acres owned by the Station, at which the problems of canning crops growers on the Eastern Shore, are studied. There is also an experimental farm at Upper Marlboro, which is operated cooperatively by the Federal Government and the Maryland Agricultural Experiment Station, and which is given over exclusively to the problems of tobacco growing and curing. There is also a number of acres rented near Pocomoke on the Eastern Shore, used for testing new varieties of potatoes. This work is checked and other varieties used, on farms in Garrett County, Maryland. Near Ellicott City there is a farm of 234 acres which is devoted to livestock problems. These various locations give a chance to conduct experiments under the conditions which exist where the results will be put into practice. This, of course, is very important in making results reliable and quickly usable.

The Station in general, exists as the "trouble-shooter" for Maryland farmers. When Maryland farmers have a problem, the first agency to attempt to meet this problem is the Agricultural Experiment Station. The solution of many difficult problems in the past has given the Maryland Agricultural Experiment Station an excellent standing among the farmers of the State.

MARYLAND STATE BOARD OF AGRICULTURE

816 Fidelity Building, Baltimore, Maryland.

H. C. BYRD, *Executive Officer*

F. K. HASZARD, *Executive Secretary*

The law provides that the personnel of the State Board of Agriculture shall be the same as the Board of Regents of the University of Maryland. The President of the University is the Executive Officer of the State Board of Agriculture.

General Powers of Board: The general powers of the Board as stated in Article 7 of the Laws of 1916, Chapter 391, are as follows:

"The State Board of Agriculture shall investigate the conditions surrounding the breeding, raising, and marketing of live stock and the products thereof, and contagious and infectious diseases affecting the same; the raising, distribution, and sale of farm, orchard, forest and nursery products, generally, and plant diseases and injurious insects affecting the same; the preparation, manufacture, quality analysis, inspection, control, and distribution of animal and vegetable products, animal feeds, seeds, fertilizers, agricultural lime, agricultural and horticultural chemicals, and biological

products; and shall secure information and statistics in relation thereto and publish such information, statistics, and the results of such investigations at such times and in such manner as to it shall seem best adapted to the efficient dissemination thereof; and except where such powers and duties are by law conferred or laid upon other boards, commissions, or officials, the State Board of Agriculture shall have general supervision, direction, and control of the herein recited matters, and generally of all matters in any way affecting or relating to the fostering, protection, and development of the agricultural interests of the State, including the encouragement of desirable immigration thereto, with power and authority to issue rules and regulations in respect thereof not in conflict with the Constitution and Laws of the State or the United States, which shall have the force and effect of law, and all violations of which shall be punished as misdemeanors are punished at common law; and where such powers and duties are by law conferred or laid on other governmental agencies may co-operate in the execution and performance thereof, and when so co-operating each shall be vested with such authority as is now or may hereafter by law be conferred on the other. The powers and duties herein recited shall be in addition to and not in limitation of any power and duties which now are or hereafter may be conferred or laid upon said board."

LIVE STOCK SANITARY SERVICE STAFF

(College Park)

MARK FREDERICK WELSH, D.V.M., M.S., Professor of Veterinary Science, State Veterinarian.

ARTHUR LOUIS BRUECKNER, B.S., V.M.D., Professor of Animal Pathology, in Charge of College Park Laboratory.

LEO JOSEPH POELMA, D.V.M., M.S., Associate Professor of Animal Pathology.

WILLIAM RUSH CRAWFORD, D.V.M., Associate Professor of Veterinary Science.

HAROLD MOON DEVOLT, D.V.M., M.S., Associate Professor of Animal Pathology.

CLYDE LORAYNE EVERSON, D.V.M., Assistant Professor of Veterinary Science, Veterinary Inspector.

CHARLES ROBERT DAVIS, D.V.M., M.S., Assistant Professor of Veterinary Science.

(Field)

IRVIN M. MOULTHROP, D.V.M., Assistant Professor of Veterinary Science, in Charge of Salisbury Laboratory.

GEORGE EDWIN DANIEL, Ph.D., Assistant Professor of Veterinary Parasitology.

LIVE STOCK SANITARY SERVICE

CHARLES HENRY CUNNINGHAM, D.V.M., M.S., Assistant Professor of Veterinary Science, in Charge of Centreville Laboratory.

WILLIAM B. COUGHLIN, D.V.M., Assistant Professor in Charge of Baltimore Laboratory.

MELVIN MOSES RABSTEIN, V.M.D., Assistant Professor of Veterinary Science, U. S. Cooperative Agent.

CLYDE W. BEAN, D.V.M., Assistant Professor of Veterinary Science, U. S. Cooperative Agent.

AMMON H. GERBERICH, D.V.M., Assistant Professor and Veterinary Inspector.

JAMES W. CROWL, D.V.M., Assistant Professor and Veterinary Inspector, Centreville.

H. B. WOOD, D.V.M., Assistant Professor and Veterinary Inspector, Hagerstown.

CLARENCE J. GIBBS, D.V.M., Assistant Professor and Veterinary Inspector, Upper Marlboro.

J. WALTER HASTINGS, D.V.M., Assistant Professor and Veterinary Inspector, Cambridge.

J. J. JONES, D.V.M., Assistant Professor and Veterinary Inspector, LaPlata.

CHAS. R. LOCKWOOD, D.V.M., Assistant Professor and Veterinary Inspector, Towson.

MAHLON H. TROUT, D.V.M., Assistant Professor and Veterinary Inspector, Salisbury.

H. L. ARMSTRONG, D.V.M., Assistant Professor and Veterinary Inspector, Bel Air.

F. H. BENJAMIN, D.V.M., Assistant Professor and Veterinary Inspector, North East.

CHAS. B. BREININGER, D.V.M., Assistant Professor and Veterinary Inspector, Easton.

ORA K. HOFFMAN, D.V.M., Assistant Professor and Veterinary Inspector, Hagerstown.

EDWARD J. McLAUGHLIN, D.V.M., Assistant Professor and Veterinary Inspector, Salisbury.

CHARLES A. TURNER, D.V.M., Assistant Professor and Veterinary Inspector, Chestertown.

CHARLES B. WEAGLEY, D.V.M., Assistant Professor and Veterinary Inspector, Middletown.

CHARLES OMER, D.V.M., Assistant Professor and Veterinary Inspector, Westminster.

CARLOS S. WILBANKS, D.V.M., Assistant Professor and Veterinary Inspector, Rockville.

LIVESTOCK SANITARY SERVICEMARK WELSH, *Director, State Veterinarian*KATHERINE CONLON, *Secretary**Executive Offices*816 Fidelity Building,
Baltimore, Maryland*Main Laboratory*

College Park, Maryland

The Live Stock Sanitary Service is charged with the control and eradication of the diseases of live stock and poultry. The work is closely correlated with the State Board of Health, the College of Agriculture of the University, the Experiment Station and the Extension Service.

It is becoming increasingly apparent that many diseases may attack both man and animal and the various infections must be controlled in the lower animals to safeguard the health of the human population. These include rabies in dogs, tuberculosis and Bang's disease in cattle, a virus disease of horses known as encephalomyelitis which has recently been found to cause severe nerve and brain disturbances in humans, trichinosis of swine and some 25 other known diseases or infections common to both man and animal. The work of this Service, therefore, is two fold in that it conserves the investment made in live stock and poultry and protects the human population.

The diagnosis of animal and poultry disease requires the same skill, training and equipment necessary for determining human ailments. It is imperative that a rapid and accurate diagnosis be made before intelligent treatment or control measures can be instituted. For this reason, a laboratory was established at College Park to serve the general needs of the state for diagnoses and research work. A regional laboratory was established at Salisbury primarily to serve the large and growing poultry industry of that section. One was established in the University buildings in Baltimore, chiefly for testing the large volume of blood samples submitted for examination from that section and another at Centreville where all types of diagnostic work are conducted to serve the needs of the area.

Veterinary inspectors are assigned to each of the counties having large live stock populations or to two or more counties where the numbers are smaller. For several years the major program was the identification and elimination of cattle affected with tuberculosis. This infection has now been reduced to less than one-half of one per cent of the cattle in the various counties but it is imperative that annual herd tests be continued if the present gains are to be held. The major field program at present is the control and eradication of Bang's disease. This is now being accomplished chiefly through the identification and elimination of the infected and by immunization of the calves. Most desirable progress has been made since 1934 but there is little reason to hope that the task can be completed within the next few years. Through the field force, much assistance is given

the stockmen, poultrymen and veterinarians in diagnosing and controlling outbreaks of disease. Quarantines are maintained when such serious outbreaks as rabies occur in a community or similar restrictions may be placed on an individual farm where the swine have hog cholera or animals have other contagious and infectious diseases. It is quite commonly recognized that animal and poultry disease may spread with the speed of our trucks when infected animals or contaminated materials are transported. Animal disease, therefore, is not only an individual misfortune but is also a community and state responsibility.

State laws and regulations of the Maryland State Board of Agriculture require that only healthy live stock may be imported into the state. Through cooperative working agreements with officials of other states the health status of live stock moving interstate is certified by the officials of the state of origin. This to a large measure protects both the buyer and the seller. These protective laws and regulations are administered by the Live Stock Sanitary Service. As herds and flocks are concentrated for the economy of care and management, the diseases and pests which limit the profits are also concentrated. When individuals are bred, fed and managed, for maximum production purposes conditions often arise which are seldom observed on individuals maintained at lower levels. Specific and non-specific diseases are frequently the limiting factor in economical production and it is to assist the stockmen and poultrymen that the Maryland Live Stock Sanitary Service has developed one of the most efficient laboratory and field services of any of the states.

MARYLAND STATE DEPARTMENT OF MARKETS

Agricultural Building, College Park, Md.

S. B. SHAW, *Chief*W. C. BEAVEN, *Marketing Specialist and Chief Inspector*L. E. DOWNEY, *Marketing Specialist and Inspector in Charge of the Enforcement of the Fresh Egg Law*A. F. MARTIN, *Assistant Marketing Specialist in Charge of Egg, Dressed Poultry, Butter and Cheese Inspections*H. J. TWILLEY, *Assistant Marketing Specialist and Inspector*C. P. POPPELL, *Assistant Marketing Specialist and Inspector*F. K. SAMPSON, *Assistant in Marketing and Inspector*

The State Board of Agriculture of Maryland has by resolutions:

1. Adopted September 25, 1925, authorized the State Department of Markets of the Extension Service of the University of Maryland, to execute as agent of said Board the powers relating to the marketing of farm products, live stock and live stock products heretofore conferred upon the Board by Law.

2. Adopted September 25, 1925, authorized the Department of Markets to execute as its agent the general powers of the Board relating to the inspection and regulation of Weights and Measures used in the sale and purchase of agricultural products.

3. Adopted February 1, 1928, authorized the Department of Markets to exercise the powers of said Board in the enforcement of the Maryland Apple Grading Law.

By Law, the Department is the agency for the State Board of Agriculture in the enforcement of the following laws: 1, Cantaloupe Maturity Law; 2, Poultry Sale and Transportation Law; 3, Trade Mark Law covering all fruits and vegetables, fresh or processed; 4, Grading Law covering fresh fruits and vegetables; 5, Inspection Law covering inspection and certification of fruits and vegetables, and 6, Fresh Egg Law.

The Department of Markets is the cooperating agency under joint memorandums of agreement with the Federal Bureaus of Agricultural Economics and Animal Industry for the inspection and certification of fruits, vegetables, live and dressed poultry, eggs, butter, cheese, canning crops; and the preparation and release of Market News reports.

In 1939 the State Department of Health deputized certain of the personnel of the Department of Markets to act as agents of the State Department of Health in preventing the sale or shipment of fruit containing excessive spray residue.

The Department of Markets issues final inspection and certification for the Seed Certification Board on Irish and Sweet potatoes and tomato seed stock: In cooperation with the U. S. D. A. maintains daily Market News Service in Baltimore on fresh fruits, vegetables, dressed poultry and eggs, also seasonal daily reports at Pocomoke on strawberries and Irish potatoes: and acts as agent for the U. S. D. A. in carrying out all purchasing programs for fruits and vegetables, including all details in connection therewith.

The headquarters of the State Department of Markets is at the University of Maryland, College Park, Maryland. Field offices are located in Baltimore, Hancock, Hagerstown, Salisbury and Pocomoke.

STATE HORTICULTURAL DEPARTMENT

College Park, Maryland

T. B. SYMONS, *Director of Extension Service*

E. N. CORY, *Assistant Director of Extension Service, State Entomologist*

R. A. JEHL, *State Pathologist*

The State Horticultural Law was enacted in 1898. It provides for the inspection of all nurseries and the suppression of injurious insects and diseases affecting plants of all kinds. The work of the department is conducted in close association with the departments of Entomology and Pathol-

ogy of the University. The regulatory work is conducted under the authority of the law creating the department as well as the State Board of Agriculture. For administrative purposes, the department is placed under the Extension Service of the University on account of the close association of the work.

Work in this field is designed to control insects and plant diseases and to protect the public in the purchase of products of nurserymen and florists. A considerable part of the time of the staff is occupied by inspection of orchards, crops, nurseries and floral establishments. Cooperation with the Federal Government in the inspection and certification of materials that come under the Japanese beetle quarantine is another major function of the department. The department also enforces the provisions of the apiary law, including the inspection of apiaries, etc. All activities pertaining to the control of insects is conducted under the direction of Dr. E. N. Cory, State Entomologist and Assistant Director of Extension.

Activities of the department in the field of plant disease control are under the direction of Dr. R. A. Jehle, State Plant Pathologist. This service includes the control and eradication of diseases of strawberries and other small fruits, diseases of peaches, apples, etc., inspection and certification of potatoes and sweet potatoes for seed purposes, control of white pine blister rust of pine trees, Dutch elm disease, etc. In this phase of the work, the department cooperates actively with the Bureau of Plant Quarantine of the United States Department of Agriculture and with the State Department of Forestry.

INSPECTION AND REGULATORY SERVICE

Chemistry Building, College Park, Maryland

Feeds, Fertilizers, Agricultural Liming Materials, Insecticides and Fungicides

L. B. BROUGHTON, *State Chemist*

L. E. BOPST, *Associate State Chemist*

E. C. DONALDSON, *Chief Inspector*

E. M. ZENTZ, *Inspector*

W. J. FOOTEN, *Inspector*

W. C. SUPPLEE, *Bio-Chemist*

THEODORE J. WEISS, *Assistant Chemist*

H. R. WALLS, *Chemist and Micro-Analyst*

ALBERT HEAGY, *Chemist*

ROBERT BAUMGARDNER, *Chemist*

JOHN E. SCHULER, JR., *Agricultural Chemist*

MAX RUBIN, *Laboratory Assistant*

The Inspection and Regulatory Service is charged with the enforcement of the laws regulating the manufacture and sale of feed, fertilizer, lime and agricultural insecticides and fungicides used in Maryland. These laws are referred to as correct labeling acts.

Primarily, the laws provide for the licensing of these agricultural commodities with the Inspection Service under specific brand names and with definite guarantees as to quality and composition. Since quality and composition can be ascertained only by careful chemical and microscopical examination, a laboratory is maintained for this purpose. The principal activities of the Service are, consequently, the registration of the various products, the collection of samples from points throughout the State, the examination of such samples, the publication of results obtained and the prosecution of those parties found responsible for violations.

It is the policy of the Inspection Service to publish in bulletin form, four times each year, the results of all examinations that are made. These publications are available to all and furnish current information at a time when it will be most valuable to prospective purchasers.

In addition to the regulatory activities mentioned, this department also examines, gratuitously, samples forwarded by residents of the State. These samples are not of a miscellaneous nature, however, but must be confined to those coming within the jurisdiction of the laws enforced and must be taken in a manner prescribed by the Inspection Agency, thereby insuring proper representation. This constitutes a very useful public service and is taken advantage of by many buyers.

Other activities include the collection of seed samples for the Seed Testing Laboratory, participation in collaborative studies on new and more accurate methods of analysis and independent investigations designed to increase the efficiency and usefulness of the department.

The operation of the Inspection and Regulatory Service serves and protects both the manufacturer and the consumer. The consumer may buy feed, fertilizer, lime and insecticide on the basis of the manufacturer's guarantee, knowing that if the guarantee is not correct he is entitled to redress. The manufacturer, in turn, may sell his product on a stated analysis knowing that his competitor must follow the same procedure. This service has removed suspicion and rewarded honesty. It has built confidence in the mind of the farmer toward the manufacturer as well as fostering a feeling of confidence between the manufacturers themselves.

SEED INSPECTION SERVICE

Horticultural Building, College Park, Maryland

F. S. HOLMES, *Inspector*
ELLEN P. EMACK, *Analyst*
OLIVE M. KELK, *Analyst*
J. T. MULLADY, *Analyst*

The Seed Inspection Service, a division of the Agricultural Experiment Station, administers the State seed law; inspects seeds sold throughout the State; collects seed samples for laboratory examination; reports the results of these examinations to the parties concerned; publishes summaries of

these reports which show the relative reliability of the label information supplied by wholesale seedsmen; cleans and treats tobacco seed intended for planting in the State; makes analyses, tests, and examinations of seed samples submitted to the Laboratory; and advises seed users regarding the economic and intelligent use of seeds. The Service also cooperates with the Agricultural Marketing Service of the United States Department of Agriculture in the enforcement of the Federal Seed Act in Maryland.

Two and a half million dollars worth of seeds are planted annually in Maryland. Perhaps twenty-five percent of the field seeds and ninety percent of the vegetable seeds planted in the State pass through trade channels and are thus subject to the seed law. The work of the Seed Inspection Service is not restricted to the enforcement of the seed law, however, for State citizens may submit seed samples to the Laboratory for analysis, test, or examination. Specific information regarding suitability for planting purposes of lots of seeds is thus made available to individuals without charge. The growth of this service has been steady since the establishment of the Laboratory in 1912. In 1913 only slightly over a hundred samples were submitted to the Laboratory; in 1941 the number was over thirty-five hundred. Few Maryland home-owners, city or country, are not directly interested in seeds for planting in flower-bed, lawn, garden, or field.

DAIRY PLANT INSPECTION SERVICE

Dairy Building, College Park, Md.

DR. CHARLES W. ENGLAND, *Chief Examiner*
MR. GLENN T. HOFFMAN, *Inspector*

The Maryland Dairy Inspection Law became effective June 1, 1935. The purpose of this law is to insure producers who sell milk and cream on the basis of butterfat test or weight that the tests and weights of such milk and cream will be correctly made, and likewise to insure the dealers who purchase such products that their agents or testers shall correctly weigh and test the milk and cream; also, to insure that tests made for official inspections or for public record will be correctly made.

The present service is based on Article 43 of the annotated code of Maryland, Chapter 403 of the Laws of Maryland, 1941.

The dairy department of the Agricultural Experiment Station is charged with the administration of the Dairy Inspection Law. It is the policy in administration of the law to use the service as a means of education to promote the mutual interests of dairy producers, dealers and manufacturers. The aim has been to aid all interests concerned and not to impose burdens.

A total of 140 plants were issued licenses in the different classifications for 1941. They were as follows: 68 milk plants in Class I (0-2,000 lbs. production); 64 plants in Class II (2,000-40,000 lbs. production); and 8 plants in Class III (over 40,000 lbs. production). Licenses were issued to 240 testers and 121 weighers and samplers.

Since the Dairy Inspection Law has been in operation the dairy industry in the State has, as a whole, been benefitted. All plants purchasing milk and cream from producers under the provisions of the Act are operating on a more nearly equal basis. Much has been done toward eliminating unfair competition and it is now recognized by the dairy industry that proper methods of weighing and sampling and testing milk and cream are essential to fair trade practices. The checking of scales for accuracy, the maintenance of proper weigh tanks, and the proper methods of sampling and testing have helped to avoid losses to either the dealer or producer. The licensing of employees to weigh, sample and test milk and cream assures both the producer and the dealer that the men engaged in such work are competent.

The calibration of glassware used for the Babcock Test and the calibration of weights has resulted in culling out many pieces of inaccurate equipment. This has resulted in eliminating errors from this source, both in purchasing products and in plant control work.

Fees for Dairy Plants Purchasing Milk or Cream

Class A—For purchasing or handling not exceeding an equivalent of 500 pounds of milk daily. Annual fee \$1.00.

Class B—For purchasing or handling more than an equivalent of 500 pounds but not exceeding 2,000 pounds of milk daily. Annual fee \$5.00.

Class C—For purchasing or handling more than an equivalent of 2,000 pounds but not exceeding 40,000 pounds of milk daily. Annual fee \$10.00

Class D—For purchasing or handling the equivalent of more than 40,000 pounds of milk daily. Annual fee \$25.00.

Fees for testing glassware and weights for accuracy.....	\$.05
Fee for Weigher's and Sampler's examination.....	1.00
Weigher's and Sampler's license fee.....	2.00
Fee for Babcock tester's examination.....	1.50
Babcock tester's license fee.....	3.00

STATE DEPARTMENT OF DRAINAGE

College Park, Maryland

RAY W. CARPENTER, *State Drainage Engineer*

The State Department of Drainage was established in 1937. Its duties are to promote and encourage the drainage of agricultural lands in the State; to correlate the activities of the local drainage organizations in the State and to cooperate with State and Federal agencies in the interest of a permanent program of improved drainage.

This department administers funds appropriated by the State in 1939 for drainage of lands in Wicomico and Worcester Counties.

SECTION VI.

Federal, State and Private Agencies

This section includes agencies and organizations on the University of Maryland campus at College Park which are not under the direction of the Board of Regents of the University of Maryland or the Maryland State Board of Agriculture.

FEDERAL AGENCIES

EASTERN EXPERIMENT STATION OF THE BUREAU OF MINES

U. S. DEPARTMENT OF THE INTERIOR

College Park, Md.

RUDOLF KUDLICH, *Superintendent*

The United States Bureau of Mines maintains at College Park its Eastern Experiment Station, housed in a splendid laboratory building erected in 1935. The State of Maryland deeded to the Federal Government a part of the University campus as a site for the building. Although the Eastern Experiment Station is entirely under the operation and control of the Federal Government, its presence on the University campus is of great value to the University. The laboratories, library and museum of the Bureau of Mines are freely available to students and faculty, and a considerable number of students are enabled to earn a part of their college expenses by employment provided by the Bureau. The University and the Bureau of Mines, jointly, offer a number of Graduate Fellowships for research in the fields of chemical engineering, chemistry, physics and mathematics.

The varied character of research and regulatory activities carried on at the Eastern Experiment Station of the Bureau of Mines is indicated by the following list which covers the most important divisions of work:

Non-Metals Division: Technological research in the field of production and utilization of non-metallic minerals, such as clays, sands, earths, etc. An important current activity is an investigation of sources of aluminum.

Mining Division: Research in the mining of non-metallic minerals (exclusive of coal and oil); metal mining and quarrying. Methods of mining bauxite for aluminum content are now being given special attention.

Explosives Division: Administrative headquarters for research and testing work in connection with commercial explosives. Testing laboratory located at Bruceton, Penna.

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The varied character of research and regulatory activities carried on at the Eastern Experiment Station of the Bureau of Mines is indicated by the following list which covers the most important divisions of work:

Non-Metals Division: Technological research in the field of production and utilization of non-metallic minerals, such as clays, sands, earths, etc. An important current activity is an investigation of sources of aluminum.

Mining Division: Research in the mining of non-metallic minerals (exclusive of coal and oil); metal mining and quarrying. Methods of mining bauxite for aluminum content are now being given special attention.

Explosives Division: Administrative headquarters for research and testing work in connection with commercial explosives. Testing laboratory located at Bruceton, Penna.

Metallurgical Division: Research into the physical properties of metals and alloys.

Coal Mining Inspection Division: Acts as a clearing house for the Federal Coal Mine Inspection System which has recently been established.

Explosives Control Division: Administrative headquarters for the Explosives Control Act. Licenses the manufacture, sale, transportation and utilization of commercial explosives in the United States.

Office of the Principal Mineralogist: Identification and classification of minerals.

Secondary Metals Statistics Section: Collects and compiles statistics on scrap metals.

Mine Accidents Statistics Section: Collects statistics on mine accidents.

FISH AND WILDLIFE SERVICE

U. S. DEPARTMENT OF THE INTERIOR

College Park, Md.

Two important divisions of the Fish and Wildlife Service are located at College Park in a building constructed in 1941, on a part of the University campus deeded to the Federal Government by the State of Maryland. While the building is entirely under Federal control, its presence on the University campus is a valuable asset. Splendid cooperative relationships have been developed between the University and the Fish and Wildlife Service, and many University students are enabled to earn a portion of their college expenses through work provided at the Technological Laboratory. Also, the University and the Fish and Wildlife Service, jointly, offer a number of graduate fellowships for research conducted at the laboratory on important problems relating to fishery industries and fishery biology.

DIVISION OF FISHERY INDUSTRIES

Technological Laboratory

J. M. LEMON, *Technologist in Charge*

H. W. NILSON, *Associate Technologist*

The new Technological Laboratory Building contains laboratory space for studies dealing with the chemistry, bacteriology, and food value of various seafoods. The nutrition and vitamin laboratories are equipped for making assays on various fishery products by means of animal and optical instruments. The canning laboratory contains a complete canning plant on a small scale. All of the problems under consideration have a direct application looking towards the improvement of the methods of handling and processing of various seafoods.

Market Development

KEITH O. BURR, *Assistant Fishery Economist*

The Market Development Unit of the Division of Fishery Industries is concerned with promoting the efficient distribution of fishery products and stimulating in consumers a wider recognition of the advantages of serving seafoods often. Under present conditions the activities of the personnel are primarily designed to promote the full utilization of all commercial food fishes which are abundant, including many species which have yet to gain full public acceptance in some areas.

DIVISION OF FISHERY BIOLOGY

Shellfish Investigation

PAUL S. GALTISOFF, *Senior Biologist*

The laboratory of Shellfish Investigations is primarily concerned with the studies of the physiology and ecology of the oyster. During the past year the specific research problems carried out at the laboratory were: (a) the carbohydrate metabolism of the oyster tissue, and (b) the study of the deposition, growth and repair of the oyster shell. The first problem is of practical significance because the accumulation of glycogen in the oysters determine their nutritive value. It is hoped that this study may lead to a development of a practical method of producing oysters of highest nutritive value. Study of the formation and growth of shell is of interest in connection with the self-protection of the organism against the attacks of boring sponges, drills, conchs and other enemies which penetrate and sometimes destroy commercial stocks of oysters.

Middle and South Atlantic Fishery Investigation

R. A. NESBIT, *Aquatic Biologist*

J. C. PEARSON, *Associate Aquatic Biologist*

Biological studies of the effect of fishing on abundance of food fishes.

WATER RESOURCES BRANCH, U. S. GEOLOGICAL SURVEY

U. S. DEPARTMENT OF THE INTERIOR

Rooms 104-106 New Engineering Building, College Park, Md.

A. H. HORTON, *District Engineer*

V. R. BENNION, *Associate Engineer*

The Water Resources Branch of the U. S. Geological Survey is engaged in investigating the flow of streams in the Potomac River basin in the States of Maryland and West Virginia. The daily, monthly, and annual flow of streams is being obtained at some 40 gauging stations in Maryland and adjacent States. Since the flow of any stream changes from day to day,

month to month, and from year to year, records for long periods showing the amount of water flowing in streams and its seasonal distribution are essential for the safe and economical design and construction of all structures and works involving the use of water in streams. There are now available for use records for some streams approaching 50 years in length and for many other streams all over the United States for shorter periods.

AGRICULTURAL ADJUSTMENT ADMINISTRATION

U. S. DEPARTMENT OF AGRICULTURE

Maryland State Committee

Room 313, Agricultural Building, College Park, Maryland

J. H. BLANDFORD, *Acting Chairman*, Maryland State Committee

ROLAND O. STELZER, *Executive Officer*

E. C. JENKINS, *Field Supervisor*

J. SPENCER DYOTT, *Field Supervisor*

DUDLEY C. AIST, *Field Supervisor*

The State office of the Agricultural Adjustment Committee is an agency whereby the counties are kept informed of the programs, and all work done in the counties is checked prior to passing on such information as is necessary to the Washington office. Approximately 25,000 farms representing 90 per cent of the crop land in the state are included in one or more of the A. A. A. programs. The work of the State office is largely concerned with the administration of the following phases of the Agricultural Conservation Program.

1. Maintaining and building the soil through specific soil building practices and adjusting the acreage of major commodities such as wheat, corn and potatoes.
2. Administering the Wheat Crop Insurance Program.
3. Working with the State USDA War Board of which Mr. Blandford is chairman.
4. Administering the Parity Program as relating to wheat and corn.
5. Administering the Conservation Materials program of furnishing lime and phosphate to producers on request.
6. Administering the Marketing Quota program for wheat which is in effect now and corn when applicable.

MARYLAND CROP REPORTING SERVICE

U. S. Department of Agriculture, Bureau of Agricultural Economics

Room 144, Arts and Science Building, College Park, Maryland

CHARLES E. BURKHEAD, *Statistician in Charge*

DONALD B. WILSON, *Assistant Statistician*

The Maryland Crop Reporting Service is a cooperative agency of the Bureau of Agricultural Economics, United States Department of Agriculture and the Extension Service, University of Maryland, the primary function of which is to gather, compile, analyze, and issue official agricultural statistics for Maryland. The reports issued by the Maryland Crop Reporting Service cover not only all of the important crops and livestock produced in Maryland but in the entire United States as well, thus providing a general picture of agricultural conditions of the country as a whole. Information is also gathered monthly on prices paid and received by Maryland farmers for commodities bought and sold. Price reports are issued to the public once each month. Reports on field crops begin in March and continue through November. In December the annual crop summary is issued. Each month a report is issued on milk and egg production and on farm labor supply and demand. Each quarter an estimate is made on grain stocks on farms and day and monthly wages of farm labor. Three livestock reports are made annually. The first report which is issued in early February gives the report as of January 1 on the number and value of all species of livestock, chickens and turkeys. The report on the spring pig crop and intended fall farrowings is made in June. The report on the fall pig crop and intended spring farrowings is made in December. The annual summary in December gives the acreage, yield per acre, production, price and value of practically every crop produced in the State of Maryland. During the growing season reports are made at two-week intervals on indicated production, movement, and other marketing information for all important truck crops produced in Maryland and in competing States as well, thus providing the grower with valuable information on market supply and demand.

The strictest secrecy surrounds the release of crop reports. Government crop reports are unbiased, disinterested and authoritative, reduce speculation, and prevent wide price fluctuations due to uncertainty. They also prevent the issuance of biased, faulty, and misleading reports by private agencies. For many crops, production is forecast far in advance of harvesting or marketing. These reports are useful as a guide in planning future operations. The latest estimates may be obtained free of charge by writing the Agricultural Statistician, College Park, Maryland. All reports released are usually on file in each County Agent's Office, all public libraries, and obtainable from practically every other agency interested in agriculture.

The Crop Reporting Service of both Maryland and Delaware is under the supervision of the Agricultural Statistician for Maryland, the combined office being located on the Campus of the University of Maryland. Mr. Charles E. Burkhead is Statistician in Charge of the Maryland and Delaware Office.

MARYLAND HEADQUARTERS OF AGRICULTURAL PLANNING FIELD SERVICE

U. S. Department of Agriculture, Bureau of Agricultural Economics
Administration Building, College Park, Maryland

JAMES W. CODDINGTON, *State Representative*

The Bureau of Agricultural Economics is charged with the economic research and general planning necessary for the improvement of existing programs of the Department of Agriculture and for the development of new farm programs. All planning in this field is done in cooperation with other bureaus and agencies of the Department of Agriculture, the Land Grant Colleges and other State Agricultural agencies, and with representative committees of farm people.

This office of the Bureau is the Maryland Headquarters for the Agricultural Planning Field Service. It had been established in the office of the chief of the Bureau, and is responsible for facilitating the entire program of the Bureau of Agricultural Economics. It helps all divisions of the Bureau in carrying out their respective activities.

At the present time the Bureau is directing all of its efforts toward war-time needs. Specifically, the Bureau has the responsibility for the general planning needed to bring about more effective use of this nation's total agricultural resources in the war effort. An immediate part of this job is to study the distribution of the 1942 production goals as a basis for the establishment of production goals in 1943 and subsequent years.

This office has been made responsible for coordinating the efforts of the various State and Federal organizations in helping to solve the farm labor problem. Likewise, attention is being devoted to the development of desirable programs for post war agriculture and rural people.

SOIL CONSERVATION SERVICE

U. S. DEPARTMENT OF AGRICULTURE

Room 103, Agricultural Building, College Park, Maryland

EDWARD M. DAVIS, *State Coordinator*

(a) The Soil Conservation Service assists soil conservation districts organized under the Maryland State Law, which was passed by the State Legislature in 1937, in planning and applying farm programs of erosion control, drainage and improved land use, and assists tax ditch associations

in carrying out extensive drainage work on large main channels; conducts soil conservation demonstrational projects in cooperation with the farmers of selected areas; supervises the technical activities of C. C. C. Camps assigned to erosion control and to farm drainage work; manages a program of sub-marginal land purchase and subsequent development for more beneficial uses; cooperatively carries on farm-forestry projects to demonstrate the value of sound woodland management; and as a background to operations work on the land, makes surveys as a basis for planning and field operations in soil conservation, drainage, and upstream flood control.

HAROLD W. HOBBS, *In Charge, Hydrologic Research*

(b) The Soil Conservation Service, cooperating with the University of Maryland Agricultural Experiment Station is conducting rainfall runoff studies on agricultural watersheds at the Experiment Station farm near College Park and in the Soil Conservation demonstrational project area near Hagerstown. A relative effectiveness of the following land uses will be determined: contour and off-contour tillage; strip cropping with or without diversion terraces; broad base terraces; plain and contour furrowed pastures; cutover and mature woodlands. Studies are being conducted to determine the effect of the utilization of plant residues in various ways on total runoff, soil loss, moisture conservation and crop yields.

CLARENCE S. SLATER, *In Charge, Conservation Experiment Station*

(c) The Experiment Stations Division of the Soil Conservation Service maintains a laboratory at College Park, and conducts investigations that are based on field and plot tests. The investigations are basically those that require laboratory facilities for their solution, and may involve determinations in the physical, chemical, and microbiological fields. A special study was set up in 1940 to develop adequate methods of soil moisture measurement as a means of evaluating soil and water conservation practices. Field tests of instruments developed here have been in operation one year. Investigations of factors related to soil erodibility and its measurement, and the effects of various soil management practices are in progress.

CIVILIAN DEFENSE SCHOOL

U. S. WAR DEPARTMENT, CHEMICAL WARFARE SERVICE

College of Engineering, College Park, Maryland

DEAN S. S. STEINBERG, *Contact Officer*

The Civilian Defense School of the Chemical Warfare Service, War Department, formerly located at Edgewood Arsenal, Edgewood, Maryland, has been established on the campus of the University.

This school is operated and controlled by Chemical Warfare Service personnel for the training of firemen, policemen, and directors of air raid protection groups located in the third and fifth Army Corps Areas.

NATIONAL CITIZENSHIP EDUCATION PROGRAM

Division of Teachers Education and Teaching Materials
Room 104, Library Building, College Park, Maryland

DR. GLENN P. KENDALL, *In Charge*

The National Citizenship Education Program is a cooperative program of the Immigration and Naturalization Service of the Department of Justice, the Work Projects Administration of the Federal Works Agency, and the Public Schools.

The basic purpose of the program is to promote intelligent citizenship and national solidarity by an intensified effort to prepare a large number of the approximately five million aliens residing in the United States, for functioning American citizenship.

The general program is under the direction of Dean William F. Russell of Teachers College, Columbia University, New York City.

The Division of Teachers Education and Teaching Materials, located at the University of Maryland, is concerned with the development of materials for teacher education and student use on the basic point of view that functioning citizenship is as broad as life itself, and teaching materials must be approached through the real life problems of the groups concerned.

STATE AGENCY**BUREAU OF CONTROL SURVEYS AND MAPS**

Department of Public Works, State of Maryland

Room 313, Engineering Building
University of Maryland, College Park, Md.

C. B. KEGARICE, *Engineer in Charge*

A law creating a system of plane rectangular coordinates for defining and stating the positions or locations of points on the surface of the earth within the State of Maryland known and designated as the "Maryland Coordinate System," together with a law establishing the Bureau of Control Surveys and Maps in the Department of Public Works to administer the laws of the Maryland Coordinate System, was enacted in 1939.

Special authorized functions of the Bureau of Control Surveys and Maps are:

1. To coordinate the efforts of the many agencies, federal, state, city, county and private, making surveys and maps in Maryland in order to avoid duplication and overlapping.
2. To develop permanent records of surveys and maps in the State.
3. To develop uniform specifications for surveying and mapping.

4. To collect and preserve all worth-while survey data, thereby salvaging for future use much valuable information now being lost; and to transcribe information to a master map.

5. To encourage engineers and surveyors to tie their surveys into the horizontal and vertical control network of the United States Coast and Geodetic Survey, thereby making their lines permanent.

6. To encourage engineers and surveyors to adopt the use of the single plane coordinate system now being developed in Maryland, for engineering projects, for municipal and county boundaries and for private surveys.

7. To become a depository for file copies of Maryland maps by all agencies and to establish a Library of Maps and Charts of the State.

8. To serve as an information bureau concerning maps of the State or any portion thereof; to retail standard maps such as are in general demand; and, to a limited extent, reproduce maps for a reasonable charge.

9. To serve annually as a central meeting point for representatives of Maryland map making organizations to discuss, coordinate and plan for mapping of the State; to direct the trend of surveys and maps of the State; and to advocate consolidation of State mapping bureaus to promote efficiency.

10. To promote the continuation and completion of the local control surveys begun in Maryland under the C. W. A.; to serve as the coordinating agency for any program of mapping launched by the Federal government; and to determine priorities.

PRIVATE AGENCIES**NATIONAL SAND AND GRAVEL ASSOCIATION
RESEARCH FOUNDATION**

Room A-27, Arts and Sciences Building, College Park, Md.

STANTON WALKER, *Director*

The National Sand and Gravel Association has by arrangement with the College of Engineering established its testing and research laboratory at the University.

The purpose of the Research Foundation is to make available to the Association additional facilities for its investigational work in the fields of aggregates, concrete, and related topics. This arrangement provides for the College of Engineering additional testing and research equipment and opportunities for increasing the scope of its engineering research.

**AVIATION DIVISION,
AMERICAN SOCIETY OF MECHANICAL ENGINEERS**
Engineering Building, College Park, Md.

DR. JOHN E. YOUNGER, *Permanent Secretary*

The Aviation Division National Headquarters of the American Society of Mechanical Engineers is located at the University of Maryland.

The purpose of this office is to render professional service to the more than 2,000 members of the Aviation Division.

Dr. John E. Younger, head of the Department of Mechanical Engineering of the University of Maryland, is Permanent Secretary of the Aviation Division, A. S. M. E.

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